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GLOBAL DATA MONITORING REPORT

November, 1996

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CONTENTS

1. Introduction

2. Global Data Monitoring Statistics

3. Composite Observing Systems for the North Atlantic (COSNA)

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

N.B. 500 km SATEMs are no longer assimilated into the UKMO global Unified Model. Both 500 km and 120 km SATEMs were replaced on 16th April 1996 by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS (from NOAA-12 and NOAA-14).

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area
10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 has been replaced by statistics for GOES-8 and GOES-9.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.¦bias¦	≥ 4 hPa	(pressure),
	≥ 5 m s^{-1}	(wind speed),
	≥ 30 degrees	(direction).
2.SD	≥ 6 hPa	(pressure),
	≥ 80 degrees	(direction).
3.PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
ATSR	ALL	MSLP	SUR	20	0	0	1.4	4.0	4.2
BOAB	ALL	MSLP	SUR	55	0	0	2.0	-4.1	4.6
CG2248	ALL	MSLP	SUR	38	38	100	0.0	0.0	0.0
CYGR	ALL	MSLP	SUR	22	18	82	5.5	-8.7	10.3
C6FA6	ALL	MSLP	SUR	56	0	0	1.3	-4.5	4.7
C6HD5	ALL	MSLP	SUR	29	0	0	2.3	5.4	5.9
C6LI6	ALL	MSLP	SUR	25	0	0	1.1	7.7	7.8
C6QK	ALL	MSLP	SUR	60	0	0	1.9	4.6	5.0
DEGY	ALL	MSLP	SUR	40	0	0	1.1	-4.0	4.2
ELRE5	ALL	MSLP	SUR	78	0	0	1.8	6.6	6.8
ELSU8	ALL	MSLP	SUR	51	0	0	1.7	5.6	5.8
EUJV	ALL	MSLP	SUR	42	0	0	2.6	9.1	9.4
KNDM	ALL	MSLP	SUR	24	0	0	2.2	8.1	8.4
LAVG4	ALL	MSLP	SUR	41	0	0	3.1	9.2	9.7
LAXS2	ALL	MSLP	SUR	67	0	0	1.4	6.5	6.6
OVIM	ALL	MSLP	SUR	45	19	42	2.1	-1.2	2.4
OXRO2	ALL	MSLP	SUR	21	3	14	3.5	-6.2	7.1
P3BA7	ALL	MSLP	SUR	83	0	0	2.7	5.5	6.2
S6CL	ALL	MSLP	SUR	28	0	0	1.7	6.0	6.3
UCJV	ALL	MSLP	SUR	20	0	0	1.1	-6.7	6.8
UCTP	ALL	MSLP	SUR	39	0	0	1.8	-4.8	5.2
UVJB	ALL	MSLP	SUR	29	1	3	1.6	6.9	7.1
VCQL	ALL	MSLP	SUR	51	0	0	2.1	-5.9	6.3
VCTV	ALL	MSLP	SUR	20	9	45	3.5	-5.7	6.7
VGJC	ALL	MSLP	SUR	20	9	45	4.3	-8.7	9.7
VOPM	ALL	MSLP	SUR	25	17	68	3.4	-5.2	6.2
VRVA5	ALL	MSLP	SUR	31	0	0	2.1	4.5	5.0
V2QU	ALL	MSLP	SUR	22	0	0	1.9	-4.0	4.4
WRGJ	ALL	MSLP	SUR	34	34	100	0.0	0.0	0.0
3EJH6	ALL	MSLP	SUR	25	0	0	0.6	6.1	6.1
3ESE9	ALL	MSLP	SUR	23	0	0	1.3	8.4	8.5
3EWJ9	ALL	MSLP	SUR	30	0	0	1.7	5.1	5.4
3FTJ4	ALL	MSLP	SUR	20	0	0	0.8	10.9	10.9
8PNI	ALL	MSLP	SUR	54	14	26	5.4	-3.1	6.2
9VIH	ALL	MSLP	SUR	38	0	0	1.6	-4.7	5.0
WIND SPEED									
DXQC	ALL	SPEED	SUR	49	0	0	2.3	5.1	5.6
FNZD	ALL	SPEED	SUR	64	0	0	2.7	5.3	5.9
PDJS	ALL	SPEED	SUR	41	0	0	4.2	5.8	7.2
PDNN	ALL	SPEED	SUR	33	0	0	6.1	6.4	8.8
PDUJ	ALL	SPEED	SUR	41	0	0	5.9	7.0	9.1
PFAS	ALL	SPEED	SUR	38	4	11	7.3	5.1	8.9
PFCZ	ALL	SPEED	SUR	24	0	0	3.8	6.4	7.5
PFJH	ALL	SPEED	SUR	40	0	0	5.1	6.1	7.9
PFQE	ALL	SPEED	SUR	48	3	6	6.8	6.5	9.4
PJKX	ALL	SPEED	SUR	79	0	0	6.0	7.0	9.2
PJVY	ALL	SPEED	SUR	50	0	0	5.3	7.9	9.5
3EWJ9	ALL	SPEED	SUR	25	1	4	2.7	5.6	6.2
3FAQ3	ALL	SPEED	SUR	22	0	0	2.9	-5.1	5.9
3FDZ5	ALL	SPEED	SUR	30	0	0	4.9	5.4	7.3
3FJY6	ALL	SPEED	SUR	23	0	0	4.5	6.6	8.0
3FQV4	ALL	SPEED	SUR	24	0	0	2.3	5.3	5.7
62125	ALL	SPEED	SUR	52	0	0	3.2	5.1	6.0
WIND DIRECTION									
LAZA	ALL	DIRN.	SUR	23	0	0	39.0	-34.7	52.2
PCZM	ALL	DIRN.	SUR	20	1	5	89.7	9.9	90.3
S6BJ	ALL	DIRN.	SUR	20	0	0	49.6	34.0	60.1
45135	ALL	DIRN.	SUR	80	0	0	51.2	36.8	63.0

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION									
46045	ALL	DIRN.	SUR	35	0	0	67.2	-48.6	82.9
46053	ALL	DIRN.	SUR	50	0	0	67.3	-33.8	75.3
46054	ALL	DIRN.	SUR	87	0	0	39.8	-30.4	50.1
46181	ALL	DIRN.	SUR	75	0	0	28.3	-57.7	64.3
51003	ALL	DIRN.	SUR	105	0	0	27.9	-33.1	43.3
51307	ALL	DIRN.	SUR	49	0	0	70.3	39.7	80.8
62126	ALL	DIRN.	SUR	92	0	0	42.2	38.3	57.0
9KJP	ALL	DIRN.	SUR	28	0	0	37.2	-32.6	49.5

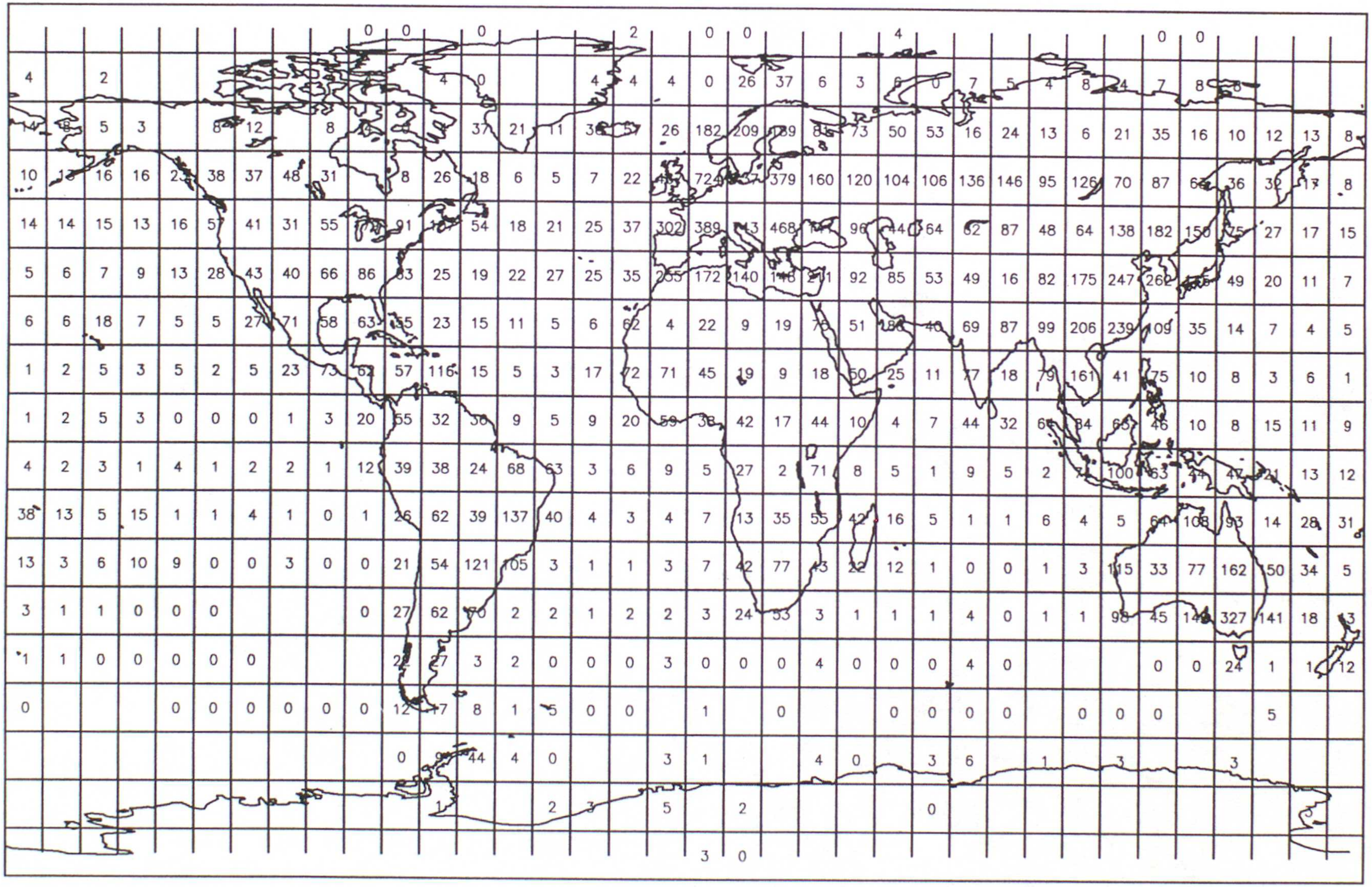
AVAILABILITY – SHIP/SYNOP – NOVEMBER 1996

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 19782

FIGURE 1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10 13 16 16 23 38 37 48 31 8 26 18 6 5 7 22 417 724 37 379 160 120 104 106 136 146 95 126 70 87 63 36 32 17 8
14 14 15 13 16 57 41 31 55 77 91 13 54 18 21 25 37 302 389 143 468 147 96 44 64 62 87 48 64 138 182 150 75 27 17 15
5 6 7 9 13 28 43 40 66 86 33 25 19 22 27 25 35 255 172 140 148 211 92 85 53 49 16 82 175 247 262 125 49 20 11 7
6 6 18 7 5 5 27 71 58 63 135 23 15 11 5 6 62 4 22 9 19 75 51 186 40 69 87 99 206 239 109 35 14 7 4 5
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4 2 3 1 4 1 2 2 1 12 39 38 24 68 63 3 6 9 5 27 2 71 8 5 1 9 5 2 7 100 63 44 47 21 13 12
38 13 5 15 1 1 4 1 0 1 26 62 39 137 40 4 3 4 7 13 35 55 42 16 5 1 1 6 4 5 64 108 93 14 28 31
13 3 6 10 9 0 0 3 0 0 21 54 121 105 3 1 1 3 7 42 77 43 22 12 1 0 0 1 3 115 33 77 162 150 34 5
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0 0 0 0 0 0 0 12 17 8 1 5 0 0 1 0 0 0 0 0 0 0 0 5
0 9 44 4 0 3 1 4 0 3 6 1 3 3
1 2 3 5 2 0
3 0

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for drifting buoys.
Standard of comparison	:Background field from Bracknell global model.
Position	:Average latitude and longitude for period.
Observation times	:00, 06, 12, 18 UTC
Elements monitored	:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).

Parameters monitored

:NOBS	:Number of observations received excluding duplicates.
:NGE	:Number of observations with gross errors.
:PGE	:Percentage of observations with gross errors.
:SD	:SD of difference of observations from background values excluding those with gross errors.
:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**
:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)	
	:25 m s^{-1}	(vector wind)	
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1.¦bias¦	≥ 4 hPa	(pressure),
		≥ 5 m s^{-1}	(wind speed),
		≥ 30 degrees	(direction).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
15904	-42.8	30.7	ALL	MSLP	SUR	167	0	0	2.0	-5.7	6.1
16941	-36.9	52.6	ALL	MSLP	SUR	112	105	94	0.7	13.5	13.6
16942	-34.1	77.9	ALL	MSLP	SUR	151	8	5	3.3	5.0	5.9
25569	83.9	77.5	ALL	MSLP	SUR	269	192	71	8.2	8.0	11.4
31521	-11.9	-37.6	ALL	MSLP	SUR	135	74	55	1.1	-1.0	1.5
33945	-41.5	-31.1	ALL	MSLP	SUR	156	43	28	5.7	5.7	8.1
46912	36.2	-137.8	ALL	MSLP	SUR	157	82	52	6.7	-1.4	6.9
46924	45.3	-127.2	ALL	MSLP	SUR	166	32	19	4.5	-5.4	7.0
46954	44.2	-128.4	ALL	MSLP	SUR	146	69	47	4.8	-6.9	8.4
54922	-39.4	-143.1	ALL	MSLP	SUR	233	0	0	2.1	-4.8	5.2
55516	10.9	69.3	ALL	MSLP	SUR	267	0	0	1.2	-4.1	4.3
56513	44.7	-63.6	ALL	MSLP	SUR	20	20	100	0.0	0.0	0.0
56919	-52.1	144.1	ALL	MSLP	SUR	192	65	34	6.2	-0.1	6.2
63666	85.2	95.7	ALL	MSLP	SUR	65	37	57	6.6	2.8	7.1
WIND SPEED											
44513	49.8	-49.1	ALL	SPEED	SUR	279	0	0	2.7	-5.9	6.5
46558	33.2	-137.2	ALL	SPEED	SUR	111	0	0	2.9	-5.7	6.4
52539	18.5	124.4	ALL	SPEED	SUR	198	0	0	1.8	-5.8	6.1
91722	18.1	145.8	ALL	SPEED	SUR	62	0	0	2.4	-6.6	7.0
91911	8.3	137.5	ALL	SPEED	SUR	197	0	0	2.5	-5.0	5.6
WIND DIRECTION											
91722	18.1	145.8	ALL	DIRN.	SUR	46	0	0	35.6	-89.5	96.3
91828	8.6	149.7	ALL	DIRN.	SUR	134	0	0	17.9	-30.1	35.0
91874	8.7	172.2	ALL	DIRN.	SUR	25	0	0	67.2	-36.1	76.2
91911	8.3	137.5	ALL	DIRN.	SUR	109	0	0	83.3	4.2	83.4

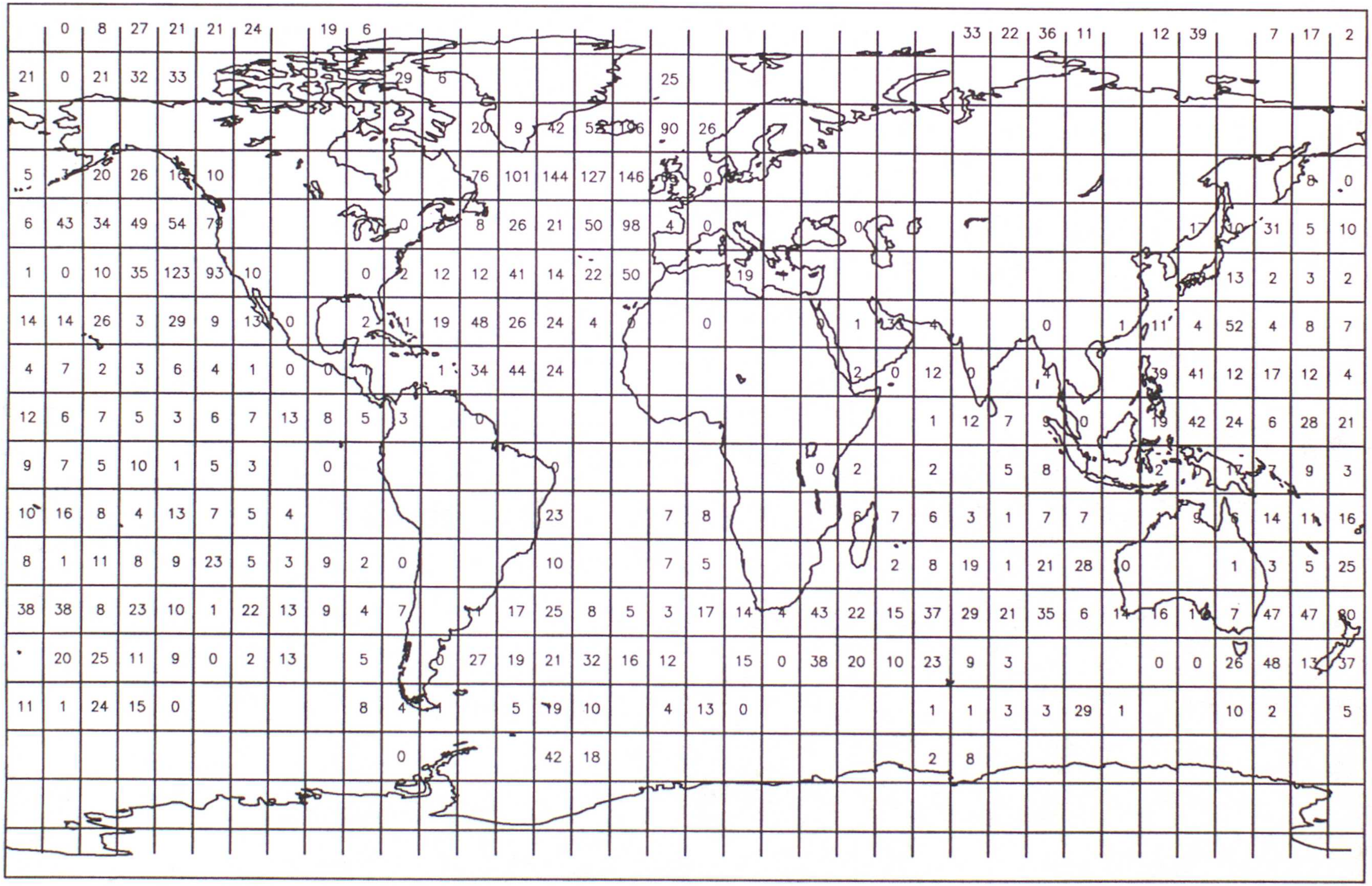
AVAILABILITY – DRIBU – NOVEMBER 1996

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 5487

FIGURE 2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12 6 7 5 3 6 7 13 8 5 3 0 1 12 7 9 0 19 42 24 6 28 21
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10 16 8 4 13 7 5 4 23 7 8 6 7 6 3 1 7 7 9 6 14 11 16
8 1 11 8 9 23 5 3 9 2 0 10 7 5 2 8 19 1 21 28 0 1 3 5 25
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20 25 11 9 0 2 13 5 0 27 19 21 32 16 12 15 0 38 20 10 23 9 3 0 0 26 48 13 37
11 1 24 15 0 8 4 1 5 19 10 4 13 0 1 1 3 3 29 1 10 2 5
0 42 18 2 8

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.¦bias¦	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	105	3	3	4	1.4	4.2	4.4
60468	35.6N	6.2E	1052	S8	103	102	99	0	0.0	-2.9	2.9
60511	35.3N	1.4E	1127	S8	106	105	99	0	0.0	5.6	5.6
60535	34.7N	3.3E	1144	S8	74	2	3	0	1.1	-6.6	6.7
60571	31.6N	2.2W	773	S8	109	0	0	0	1.1	-4.7	4.8
60670	24.6N	9.5E	1054	S8	101	2	2	97	0.9	8.0	8.1
61233	15.2N	7.3W	265	M	94	0	0	0	0.9	-4.0	4.1
62402	26.2N	32.7E	77	M	21	21	100	5	0.0	0.0	0.0
63330	13.5N	39.5E	2212	MS	37	0	0	3	1.5	-6.1	6.3
63333	11.1N	39.7E	1916	MS	57	1	2	0	1.0	7.3	7.4
63402	7.7N	36.8E	1577	MS	50	5	10	36	2.2	-12.1	12.3
63451	8.7N	39.0E	1876	MS	51	0	0	0	1.4	-4.5	4.7
63453	8.8N	39.8E	1062	S	38	2	5	0	1.8	12.1	12.2
63478	5.1N	44.6E	320	MS	40	0	0	28	1.0	7.3	7.4
68014	19.6S	18.1E	1411	S8	88	0	0	51	1.5	-5.1	5.3
68396	26.5S	31.3E	641	S8	53	0	0	0	1.5	4.0	4.3
68442	29.1S	26.3E	1354	S8	78	0	0	3	1.8	-4.8	5.1
68488	28.4S	31.1E	1279	S8	55	55	100	0	0.0	0.0	0.0
68752	32.8S	27.4E	524	S8	60	0	0	0	1.1	-7.7	7.8

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
24382	66.4N	143.2E	196	MS	60	1	2	40	3.3	6.0	6.8
24671	63.9N	135.9E	402	MS	24	0	0	88	2.3	8.7	9.0
30554	54.5N	113.6E	995	MS	60	1	2	33	1.5	9.5	9.6
30764	52.6N	115.2E	646	MS	44	0	0	2	1.6	-4.3	4.6
35173	51.6N	69.8E	620	M	31	31	100	0	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	74	0	0	0	1.1	8.0	8.1
40710	37.9N	47.5E	-9999	M	62	0	0	29	3.6	4.2	5.5
40743	36.2N	57.7E	941	MS	118	1	1	19	1.4	-4.7	4.9
40762	35.3N	59.2E	1333	MS	114	35	31	38	3.3	-13.1	13.5
40763	35.2N	58.5E	1060	MS	37	0	0	0	1.4	-5.9	6.1
40783	32.4N	49.7E	1972	MS	75	0	0	0	1.4	-5.0	5.2
40789	33.8N	55.1E	921	MS	67	1	1	1	1.9	9.1	9.3
40798	32.3N	50.9E	1991	M	71	2	3	0	1.5	-7.6	7.7
40836	30.8N	51.7E	1880	MS	72	2	3	1	1.6	9.0	9.1
40859	29.0N	53.7E	1383	MS	70	0	0	0	1.5	9.6	9.7
41254	23.1N	57.7E	1755	S8	86	86	100	0	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	40	0	0	0	1.9	7.6	7.8
41466	13.7N	44.1E	1385	8	33	0	0	0	1.1	-6.2	6.3
44232	49.4N	102.7E	938	MS	58	0	0	0	1.6	-5.1	5.3
44239	48.8N	103.6E	1208	MS	63	0	0	3	1.3	-4.0	4.2
44416	28.6N	81.6E	720	MS	65	1	2	2	1.6	4.2	4.5
44477	27.0N	87.4E	1445	S8	60	60	100	0	0.0	0.0	0.0
47022	40.8N	128.2E	1206	S	81	0	0	20	1.8	4.4	4.8
51334	44.6N	82.9E	321	M	116	0	0	28	2.7	4.9	5.6
52602	38.8N	93.4E	2734	S	116	0	0	0	1.8	-5.1	5.4
53083	44.6N	114.2E	1183	M	116	0	0	71	2.7	6.0	6.6
53352	41.7N	110.4E	1377	M	116	0	0	41	2.7	4.8	5.5
53705	37.5N	105.7E	1185	M	116	0	0	6	2.0	4.0	4.5
54386	41.4N	128.2E	1018	M	114	0	0	9	2.7	4.2	5.0
56144	31.7N	98.6E	3204	S	101	0	0	23	1.8	-4.3	4.7
56287	30.0N	103.0E	629	M	117	0	0	35	1.8	4.7	5.0
56444	28.5N	98.9E	3488	S	113	113	100	0	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	101	0	0	0	2.0	8.0	8.2
57006	34.6N	105.8E	1143	M	116	0	0	0	2.0	4.1	4.6
58445	30.3N	119.4E	1494	S	120	0	0	31	1.5	-4.1	4.4

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	35	0	0	0	1.1	-5.7	5.8
82704	7.6S	72.7W	170	MS	80	0	0	1	1.9	-4.0	4.4
82975	9.1S	44.1W	331	MS	49	0	0	71	1.6	4.7	5.0
83235	12.4S	46.4W	660	MS	81	0	0	2	1.6	7.0	7.2
83295	13.4S	39.9W	755	MS	51	2	4	88	0.7	-4.3	4.4
83332	14.1S	46.4W	950	MS	84	31	37	0	0.8	13.7	13.7
83361	15.6S	56.1W	179	MS	80	0	0	1	1.9	4.3	4.7
83408	14.3S	43.8W	556	MS	80	4	5	1	1.3	10.7	10.8
83423	16.7S	49.3W	729	MS	81	0	0	0	1.0	-5.3	5.4
83488	17.8S	42.9W	1097	MS	78	78	100	0	0.0	0.0	0.0
83531	18.6S	46.5W	896	MS	75	1	1	0	1.0	-6.4	6.5
83538	18.2S	43.6W	1297	MS	72	3	4	100	1.2	-11.0	11.1
83543	18.8S	41.9W	277	S	40	1	3	43	3.2	5.5	6.4
83577	19.8S	47.9W	743	MS	32	0	0	31	1.5	-4.0	4.3
83587	19.9S	43.9W	850	MS	74	0	0	0	1.0	-7.8	7.9
83689	21.3S	43.8W	1171	MS	52	0	0	0	0.7	4.8	4.9
83704	22.3S	53.9W	369	MS	63	0	0	68	5.2	-4.5	6.9
83773	23.1S	48.9W	793	MS	42	0	0	0	1.1	-5.5	5.6
83836	25.5S	50.6W	837	MS	82	0	0	0	0.9	-4.9	5.0
83916	28.2S	51.5W	806	MS	83	0	0	0	0.9	-5.1	5.2
84401	5.2S	80.6W	55	MS	77	1	1	4	1.6	6.1	6.3
84455	6.5S	76.4W	282	M	57	0	0	0	1.7	6.1	6.3
84472	7.1S	78.5W	2622	S	37	2	5	3	1.1	-5.0	5.1
84501	8.1S	79.0W	30	MS	69	0	0	28	1.3	6.9	7.0
84542	9.4S	77.6W	2760	S	32	1	3	6	2.6	5.2	5.8
84628	12.0S	77.1W	13	MS	120	1	1	0	1.2	4.4	4.6
84686	13.6S	72.0W	3249	S	96	0	0	7	1.9	-6.1	6.4
84782	18.1S	70.3W	469	MS	69	0	0	1	1.4	9.1	9.2
85264	18.5S	64.1W	1998	S	53	1	2	0	1.8	-10.6	10.8
85406	18.3S	70.3W	58	M	118	0	0	0	1.2	7.8	7.9
85418	20.5S	70.2W	48	M	120	0	0	0	1.3	5.2	5.4
85442	23.4S	70.4W	135	M	117	0	0	0	1.1	5.9	6.0
85460	26.3S	70.6W	30	M	38	0	0	0	1.0	5.0	5.1
85488	29.9S	71.2W	142	MS	116	0	0	10	1.9	4.5	4.9

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71094	66.7N	61.4W	722	MS	118	0	0	13	1.9	-4.2	4.6
71887	50.7N	120.5W	346	MS	118	0	0	2	2.9	4.1	5.0
71891	50.2N	121.6W	229	MS	118	0	0	14	3.6	4.8	6.0
76118	30.4N	109.7W	1040	MS	46	0	0	0	1.0	-10.7	10.7
76160	29.1N	111.0W	211	MS	50	0	0	4	1.2	-4.1	4.3
76539	22.1N	101.0W	1870	MS	102	1	1	1	1.3	-4.1	4.3
76625	20.6N	100.4W	1813	MS	69	1	1	22	1.2	-7.6	7.7
76632	20.1N	98.7W	2417	MS	48	0	0	94	1.1	-5.3	5.4
76634	20.1N	98.4W	2135	MS	91	0	0	78	1.5	-4.4	4.6
76658	19.2N	103.7W	494	MS	42	0	0	2	1.8	5.0	5.3
76762	17.5N	99.5W	1865	MS	109	109	100	0	0.0	0.0	0.0
76775	17.1N	96.7W	1550	MS	70	2	3	1	1.2	4.2	4.4
78627	15.3N	91.5W	1901	S	68	3	4	3	1.1	4.1	4.2

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
91339	5.5N	153.8E	3	MS	47	0	0	0	1.4	-5.2	5.4

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	89	1	1	2	1.6	-5.5	5.7
02045	67.8N	20.4E	408	M	48	48	100	0	0.0	0.0	0.0
08221	40.5N	3.6W	633	MS	115	0	0	0	1.3	6.4	6.5
11024	48.4N	15.4E	860	S8	117	38	32	0	0.8	-13.7	13.7
11180	47.7N	15.8E	1546	S8	118	0	0	24	1.5	-4.1	4.4
16020	46.5N	11.3E	1461	MS	56	56	100	0	0.0	0.0	0.0
16227	41.9N	13.6E	655	MS	118	99	84	0	1.1	-13.1	13.1
16549	39.1N	8.3E	12	MS	118	0	0	0	1.2	-4.5	4.7
16614	40.4N	21.3E	604	MS	112	0	0	6	1.1	-7.1	7.2

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89108	89.0S	0.3W	2754	S	91	3	3	8	3.4	4.2	5.4
89664	77.9S	166.7E	24	MS	93	0	0	0	2.8	-6.1	6.7
89744	74.0S	43.0E	3353	S	84	0	0	0	1.8	8.7	8.9
89803	68.5S	102.2E	2125	S	65	0	0	0	2.0	-10.3	10.5
89860	74.2S	160.3E	1772	S	83	31	37	67	3.3	-9.7	10.2

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:70.0 - 500.0 hPa
Elements monitored		:TEMP in °C ; WIND in $m\ s^{-1}$
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 $m\ s^{-1}$ Vector Wind
SELECTION CRITERIA		:N REP ≥ 20

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	167	1	1	1.7	0.4	167	0	2	1	6.3	0.9
AAL	5415	0	1	1.7	0.1	5432	0	2	0	8.5	0.9
AAN	278	1	7	1.6	-0.2	268	0	8	0	8.2	0.4
AAR	1996	1	1	1.8	0.0	1995	0	2	0	9.0	0.5
ACA	1383	1	1	1.9	0.0	1423	0	1	0	7.4	0.7
AEA	625	0	100	2.7	1.6	607	0	3	0	8.9	0.5
AEL	597	0	4	1.9	-0.2	599	0	4	0	7.5	0.5
AFB	20	0	0	2.6	-0.6	20	0	5	0	14.1	2.3
AFL	195	1	100	2.2	0.7	200	1	2	0	8.0	0.9
AFR	1433	1	4	1.7	-0.1	1472	0	5	0	8.6	0.5
AIH	111	3	5	1.7	0.1	113	0	4	0	9.7	1.3
AJM	39	5	5	1.7	-1.0	39	0	0	0	7.9	0.8
AMT	399	0	3	1.8	0.9	413	0	3	0	7.5	0.3
AMX	256	1	3	1.6	-0.2	262	0	3	0	8.2	0.7
ANA	928	1	1	1.8	-0.3	926	0	2	0	9.4	0.2
ANZ	2575	2	3	1.9	-0.1	2542	0	3	1	8.2	1.1
AOM	489	1	2	1.7	1.0	494	0	3	0	7.6	0.5
ARP	176	1	1	1.9	1.3	128	0	2	2	6.0	1.8
AUA	48	0	4	1.7	-1.0	49	0	4	0	7.9	0.6
AVA	339	1	4	1.9	-0.2	343	1	3	0	10.0	0.6
AVN	39	3	3	2.1	0.8	38	0	0	0	8.0	0.6
AXA	25	0	0	2.6	2.0	25	0	4	0	15.0	1.5
AZA	455	1	6	2.7	0.9	473	0	4	0	8.1	1.4
BAL	405	1	14	1.6	-0.3	411	0	14	0	9.2	0.9
BAW	1485	0	3	1.8	-0.2	1498	0	4	0	8.1	0.6
BBB	43	0	0	1.3	-0.4	43	0	0	0	7.5	2.0
BWA	313	0	64	2.6	1.7	320	0	4	0	8.4	1.0
CAL	2042	1	2	1.9	0.0	2061	0	2	0	9.0	0.7
CCA	160	3	9	2.7	0.0	189	2	71	0	13.7	-0.8
CDN	1903	0	1	2.0	0.4	1909	0	2	0	8.3	0.4
CES	270	1	1	2.0	0.5	274	2	6	0	10.4	-0.5
CFC	37	3	22	2.0	-1.1	38	0	21	0	10.6	1.4
CFG	1137	1	1	1.8	-0.7	1132	0	2	0	8.0	0.1
CKS	278	1	97	2.2	0.9	280	0	5	0	10.2	1.0
CKT	118	2	3	2.0	0.6	115	0	5	1	8.6	0.0
CLI	21	0	0	1.6	1.5	21	0	0	0	8.1	1.3
CLX	315	0	1	1.8	-0.5	320	0	3	0	8.4	0.9
CMI	740	1	2	1.8	0.6	763	0	4	1	8.8	1.0
CMM	249	0	2	1.4	0.2	252	0	3	0	8.3	1.2
COA	1235	1	2	1.6	0.5	1244	0	3	0	8.5	0.4
CPA	60	0	0	1.5	-0.3	66	0	0	0	6.9	0.7
CRL	488	0	1	1.6	0.3	496	0	3	0	8.6	1.0
CSA	32	0	3	1.8	-1.0	32	0	3	0	5.3	0.6
CTM	46	0	20	2.5	0.3	47	0	17	0	6.2	1.3
CUB	480	1	100	2.6	1.5	493	0	10	0	10.2	1.1
DAF	25	0	0	2.1	0.3	24	0	0	0	6.1	0.8
DAL	5263	1	3	2.2	0.7	4828	0	2	0	8.1	0.5
DHL	489	10	100	4.4	-2.4	482	0	100	0	11.7	1.0
DLH	3681	0	7	1.9	0.4	3703	0	10	2	8.1	1.0
DOA	94	0	3	1.6	-0.6	96	0	4	0	8.8	0.9
EIA	130	2	5	1.3	-0.1	133	1	6	0	9.7	0.9
ELY	174	1	15	2.9	0.7	180	1	11	0	9.2	-0.9
EVA	679	1	1	1.9	-0.2	713	0	2	0	9.2	0.8
EWW	163	1	100	3.5	1.4	164	1	100	0	15.1	3.4
FDX	1396	1	2	1.9	0.6	1418	0	3	0	8.3	0.4
FIN	374	1	3	1.7	0.2	375	0	6	1	8.8	0.3
FJI	448	3	3	1.6	0.7	441	0	1	0	8.3	0.8
FNY	21	0	0	1.2	-0.2	21	0	5	0	10.2	-0.6
FOM	83	2	2	2.4	1.3	107	0	100	0	13.8	0.0

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GAF	66	2	3	1.9	-0.1	65	0	6	0	8.7	-0.3
GDR	26	0	0	2.0	0.5	28	0	0	0	7.9	1.2
GHA	28	0	4	1.2	0.5	29	0	7	0	11.4	0.9
GIA	196	0	1	1.6	0.8	197	0	2	1	7.4	1.0
GTI	33	0	0	1.9	0.5	35	0	0	0	13.7	2.9
HAL	1680	0	1	1.5	0.4	1681	0	1	0	8.2	0.8
HLF	174	0	2	1.6	-0.6	169	0	1	1	7.4	0.6
HRH	36	3	11	1.1	0.4	35	0	9	0	6.2	-0.5
HZM	33	0	0	1.5	0.2	34	0	6	0	10.3	-1.2
IBE	3042	1	20	2.0	0.4	3034	0	21	0	9.2	0.5
ICE	616	0	1	1.7	0.0	618	0	1	0	6.8	0.3
JAA	26	4	8	2.2	1.7	25	0	4	0	6.0	0.9
JAL	6768	0	1	1.8	0.1	6806	0	1	0	8.8	0.7
JAS	44	0	2	2.0	0.8	44	0	5	2	7.7	0.6
JAZ	57	2	2	1.6	0.7	58	0	2	0	6.5	0.4
KAL	3459	1	2	2.0	-0.1	3456	0	3	0	9.9	0.8
KIW	26	0	4	2.6	1.7	28	0	7	0	9.6	1.2
KLM	2284	0	1	1.8	0.3	2293	0	2	0	8.2	0.7
LDA	254	0	8	2.0	-1.3	257	1	9	0	7.4	0.2
LDI	70	0	19	1.8	-0.8	68	0	21	0	7.0	0.0
LIB	213	0	2	1.8	1.1	218	0	4	0	8.2	-0.1
LKR	51	0	4	1.7	0.8	51	0	10	0	10.1	-0.3
LOT	224	0	2	2.0	-1.0	224	0	2	0	7.6	0.9
LTU	960	0	3	1.7	0.2	923	0	5	0	8.5	0.6
MAS	350	0	0	1.9	-0.2	386	0	3	0	9.2	0.8
MDA	180	0	1	2.0	0.1	185	1	2	0	8.9	-0.2
MON	35	0	0	1.0	0.3	34	0	0	0	7.4	-0.1
MPH	835	0	1	1.7	-0.5	830	0	2	0	7.6	0.6
NCA	653	0	1	1.8	0.4	652	0	2	0	8.5	0.7
NWA	9955	0	2	2.0	0.6	9977	0	2	0	8.7	0.5
OAL	28	0	4	2.6	2.0	29	0	0	0	8.9	1.6
PAC	126	2	6	2.1	0.7	134	0	6	0	7.4	0.7
PAL	1098	1	2	1.7	-0.2	1110	0	2	1	8.9	0.7
PAO	194	0	2	1.5	0.2	192	1	3	0	7.2	0.5
PIA	29	3	7	2.7	-1.3	32	0	16	0	17.4	3.2
PNL	65	3	2	2.1	1.0	64	0	3	0	11.4	0.7
QFA	1048	1	2	1.7	0.2	1046	0	3	1	7.7	1.0
RAF	259	0	1	1.9	0.6	257	0	2	0	10.0	1.1
RCH	513	5	96	3.1	0.8	536	1	96	0	13.9	1.7
RJA	60	2	7	2.4	0.9	62	0	3	0	9.5	-0.8
RKA	76	0	1	1.5	-0.5	76	0	3	0	8.5	0.2
RON	21	5	5	1.5	0.8	20	0	0	0	5.2	0.7
RRR	168	1	15	2.4	0.1	169	1	16	1	7.7	0.8
SAA	325	1	3	1.8	-0.2	329	0	3	0	7.3	0.4
SAB	67	0	1	1.8	0.2	68	0	6	0	9.0	0.3
SAS	1067	0	2	2.4	0.7	1071	0	2	1	8.1	0.6
SHE	20	5	5	3.5	3.1	21	0	5	0	6.6	-0.5
SIA	1341	0	1	1.9	-0.6	1366	0	3	0	9.6	0.3
SLR	70	0	9	1.6	-0.7	70	0	9	0	7.7	0.5
SOL	58	2	2	1.2	0.6	57	0	0	0	6.3	0.5
SPP	39	0	5	1.2	0.1	36	0	8	0	8.1	3.0
SVA	115	1	3	1.7	0.6	119	0	69	0	13.4	2.0
SVV	38	3	11	3.3	1.2	38	0	18	0	14.1	-2.5
SWR	231	0	7	2.4	0.5	241	0	8	0	9.8	0.8
TAP	449	0	4	1.5	-0.4	446	0	4	0	8.5	0.6
TEJ	59	0	24	1.7	0.5	60	0	25	0	9.5	0.5
THA	266	0	0	1.8	-0.5	273	0	1	0	9.4	0.6
THY	21	0	10	1.5	0.3	26	0	23	0	17.9	9.2
TOW	72	0	0	1.5	-0.3	72	0	3	0	9.4	2.1

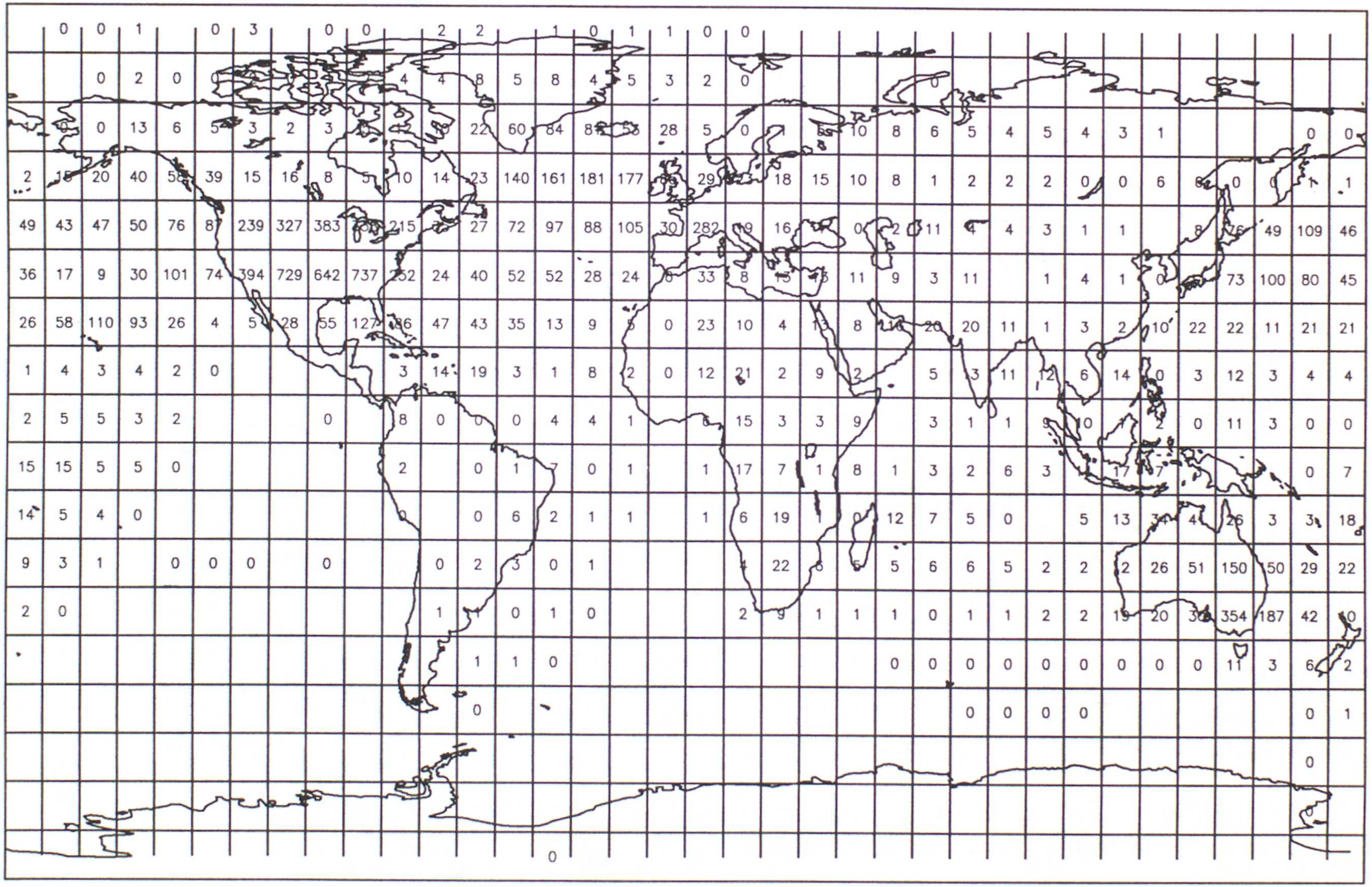
		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
TWA	1414	0	2	1.9	-0.1	1403	0	3	0	8.8	1.0
TWE	40	0	0	2.9	1.0	40	0	0	0	7.8	1.7
UAL	12865	1	2	2.1	-0.1	12970	0	2	0	8.3	0.7
ULE	286	2	2	1.5	0.4	285	0	1	0	8.2	1.2
UPS	1020	1	11	1.6	0.0	1033	0	11	0	8.8	0.7
USA	340	0	2	1.7	-0.4	338	0	4	0	9.4	0.6
VIA	607	1	5	2.0	0.9	609	0	6	0	8.3	0.2
VIR	353	1	3	1.9	-0.5	356	0	3	0	8.7	1.8
VRG	62	5	5	1.3	0.7	62	0	2	0	9.6	2.3
VSP	206	1	2	1.8	0.4	208	0	3	0	8.5	0.2
VVR	22	23	27	4.2	2.4	28	0	0	0	6.9	-0.1
WOA	63	0	8	2.5	1.4	67	0	7	0	8.1	1.2
AF	28	0	0	1.4	-0.9	28	0	0	0	6.2	-0.6
AN	24554	0	2	1.2	0.1	24361	0	2	0	6.4	0.8
BA	16117	0	7	1.2	0.4	16063	0	11	0	7.0	1.0
DL	99071	0	1	1.3	0.1	99071	0	1	0	6.7	1.2
FJ	21	0	14	2.0	1.2	21	0	14	0	6.9	1.5
IT	796	0	9	1.6	-0.2	794	0	1	0	9.2	2.9
KL	8688	0	6	1.2	0.3	8679	0	24	0	7.1	1.0
LH	3218	0	2	1.5	0.4	3199	0	3	0	7.1	1.0
MK	4676	0	0	1.0	0.5	4650	0	1	0	8.4	1.9
NW	34266	0	2	1.4	0.3	34266	0	2	0	6.5	1.0
QF	7753	0	1	1.1	0.2	7739	0	1	0	6.2	0.8
SA	3638	0	17	1.2	0.8	3638	0	18	0	7.2	0.9
SV	1416	0	1	1.2	0.9	1400	0	100	0	5.7	1.3
N	516	3	5	2.6	0.6	543	0	7	0	11.7	1.7

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA

NOVEMBER 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3



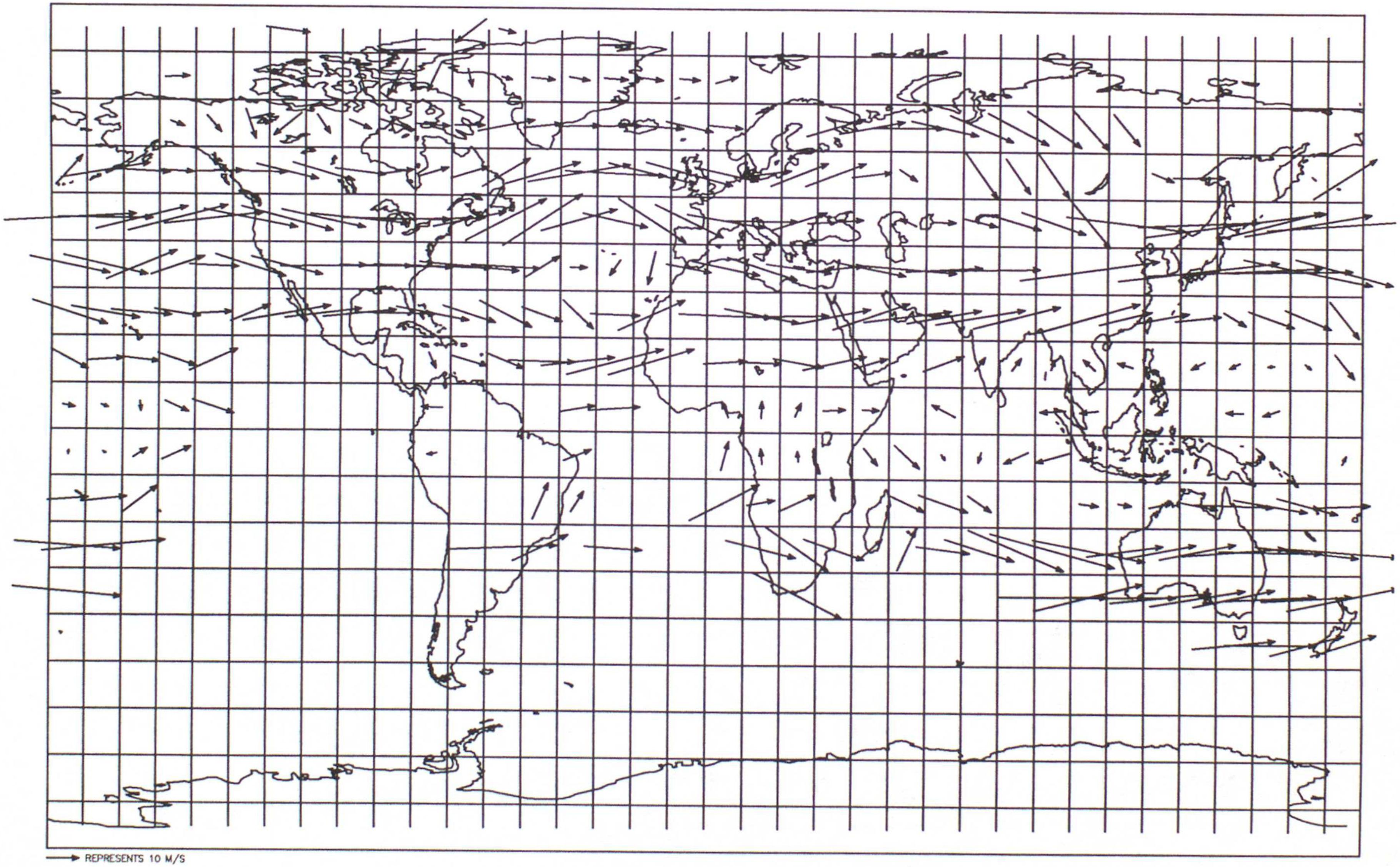
AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

FIGURE 4

NOVEMBER 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



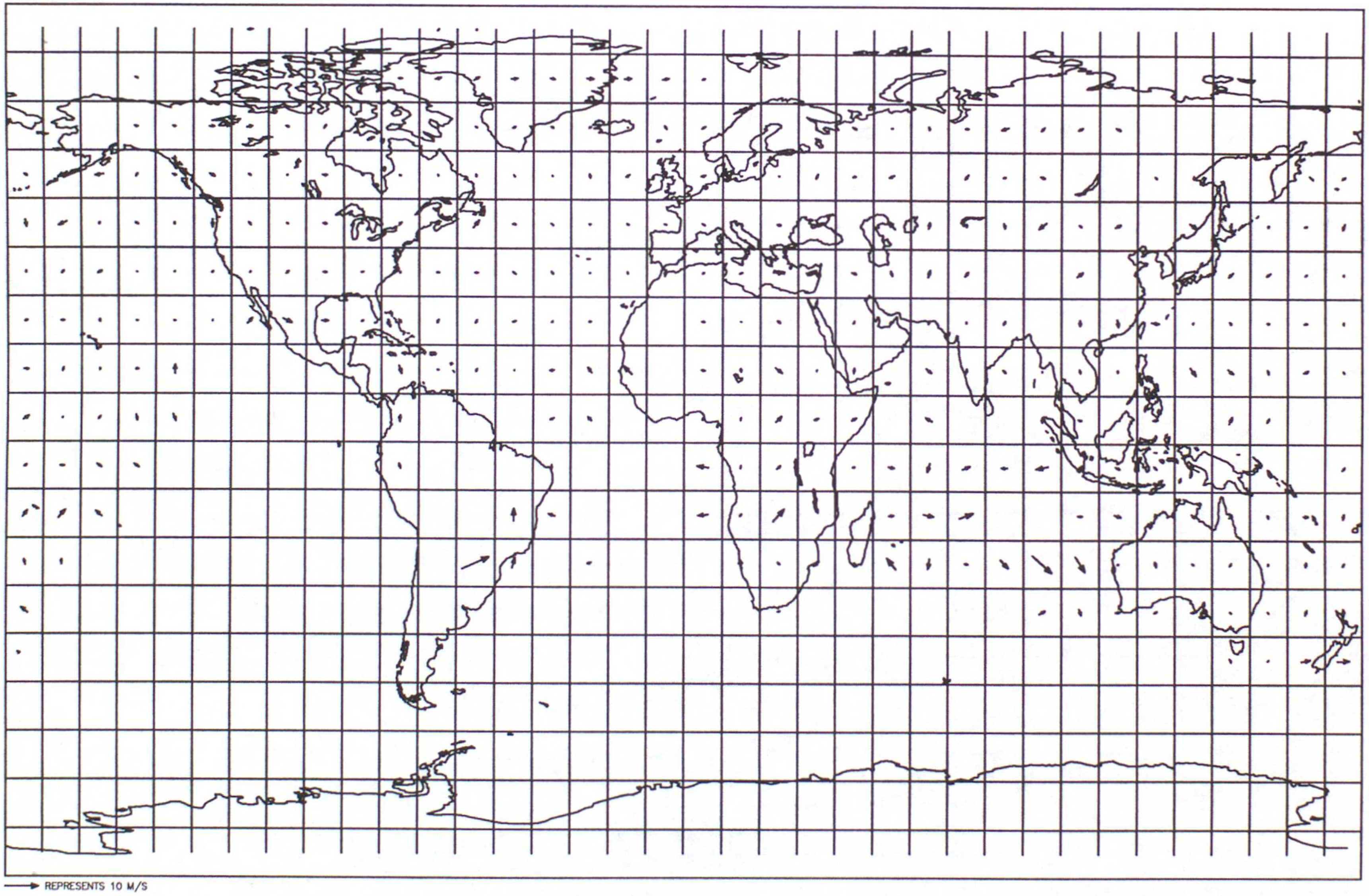
AIRCRAFT MEAN O-B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

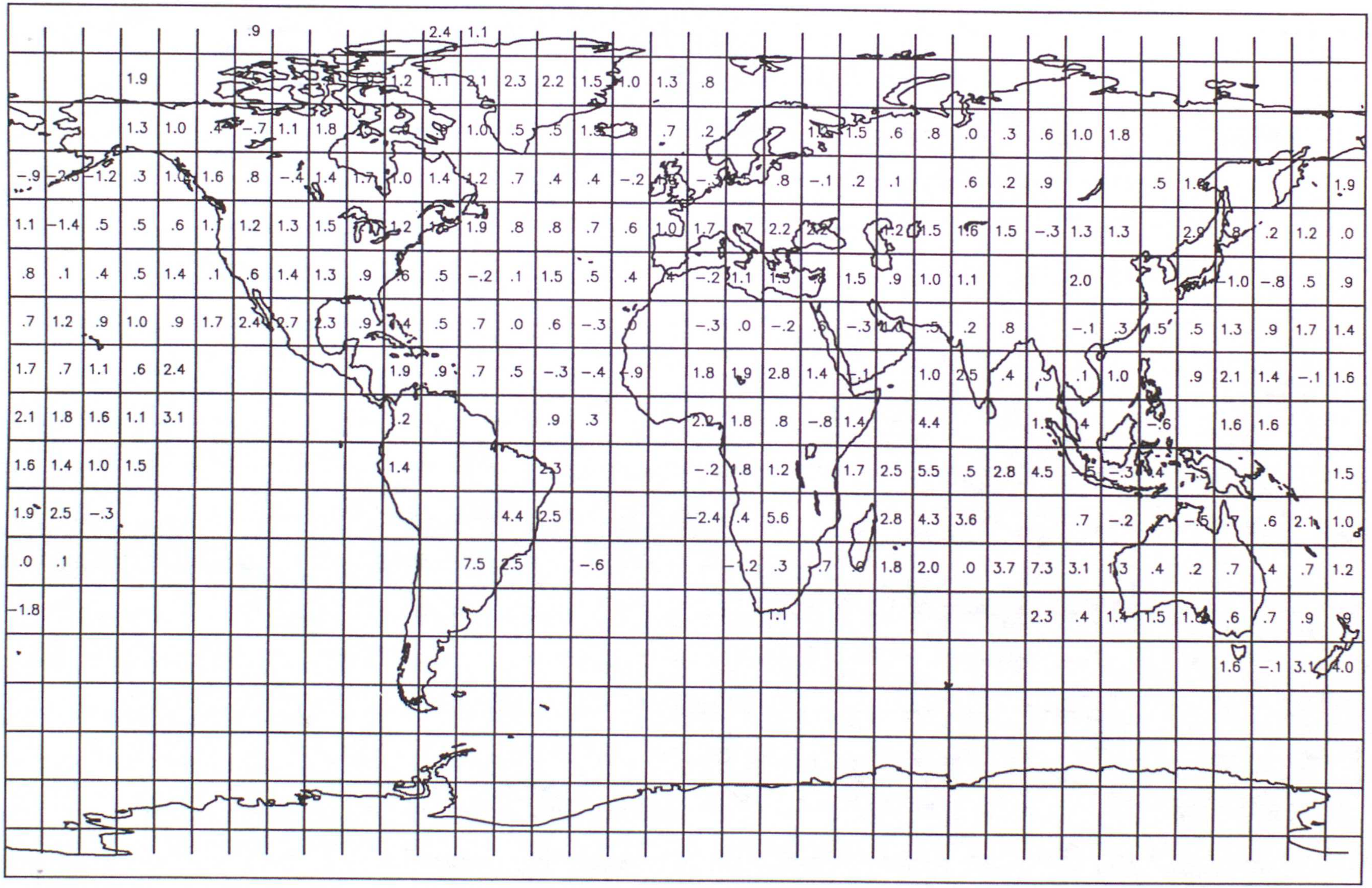
NOVEMBER 1996

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
NOVEMBER 1996
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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1.3 1.0 .4 –.7 1.1 1.8 1.0 .5 .5 1.5 .7 .2 1.5 .6 .8 .0 .3 .6 1.0 1.8
–.9 –1.2 .3 1.6 .8 –.4 1.4 1.0 1.4 1.2 .7 .4 .4 –.2 .8 –.1 .2 .1 .6 .2 .9 .5 1.9
1.1 –1.4 .5 .5 .6 1.2 1.3 1.5 1.2 1.9 .8 .8 .7 .6 1.0 1.7 2.2 1.5 1.6 1.5 –.3 1.3 1.3 .2 1.2 .0
.8 .1 .4 .5 1.4 .1 .6 1.4 1.3 .9 .5 –.2 .1 1.5 .5 .4 –.2 1.1 1.5 .9 1.0 1.1 2.0 –1.0 –.8 .5 .9
.7 1.2 .9 1.0 .9 1.7 2.4 2.7 2.3 .9 .4 .5 .7 .0 .6 –.3 –.3 .0 –.2 –.3 .5 .2 .8 –.1 .3 .5 .5 1.3 .9 1.7 1.4
1.7 .7 1.1 .6 2.4 1.9 .9 .7 .5 –.3 –.4 .9 1.8 1.9 2.8 1.4 1.0 2.5 .4 .1 1.0 .9 2.1 1.4 –.1 1.6
2.1 1.8 1.6 1.1 3.1 .2 .9 .3 2.2 1.8 .8 –.8 1.4 4.4 .4 –.6 1.6 1.6
1.6 1.4 1.0 1.5 1.4 2.3 –.2 .8 1.2 1.7 2.5 5.5 .5 2.8 4.5 –.3 .4 1.5
1.9 2.5 –.3 4.4 2.5 –2.4 .4 5.6 2.8 4.3 3.6 .7 –.2 .6 2.1 1.0
.0 .1 7.5 .5 –.6 –1.2 .3 .7 1.8 2.0 .0 3.7 7.3 3.1 .4 .2 .7 .4 .7 1.2
–1.8 1.1 2.3 .4 1.5 .6 .7 .9
1.6 –.1 3.1 4.0

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
NOVEMBER 1996
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

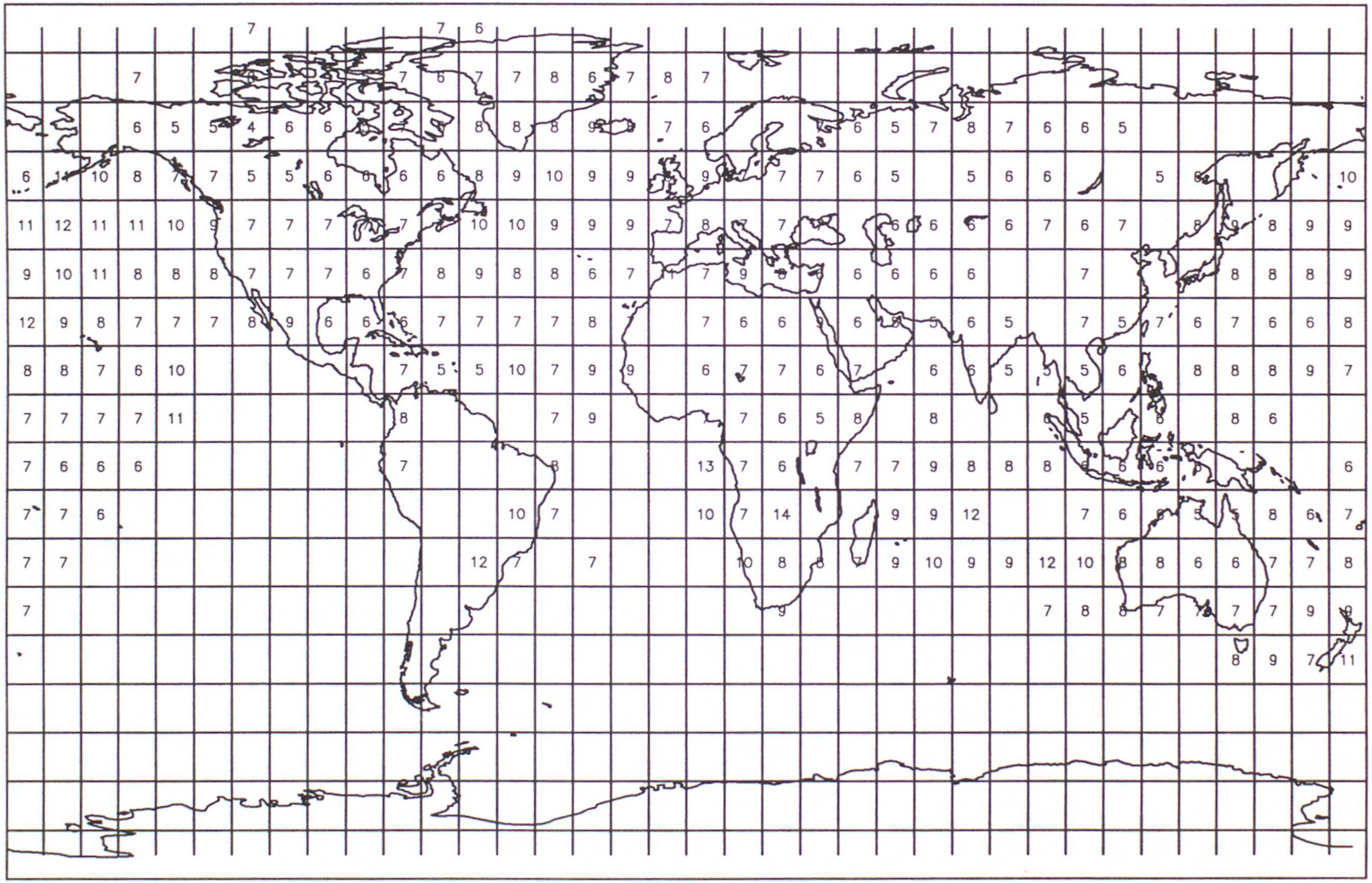


TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown duringperiod.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
32215	00	Z	200	51/ 156	25	0	22.8	80.8	84.0	5
37018	00	Z	200	44/ 39	24	0	21.9	87.5	90.2	4
37985	00	Z	100	39/ 49	17	2	77.2	120.4	143.0	8
41977	00	Z	300	22/ 92	26	0	58.6	-36.9	69.2	5
42369	00	Z	100	27/ 81	12	1	122.6	-16.3	123.7	8
42369	12	Z	30	27/ 81	11	0	209.7	71.7	221.6	4
42379	00	Z	30	27/ 83	12	2	192.2	149.6	243.6	10
42379	12	Z	70	27/ 83	19	1	164.8	14.9	165.4	8
42397	00	Z	700	27/ 88	19	0	26.1	-36.3	44.7	6
42397	12	Z	200	27/ 88	13	0	93.1	-54.9	108.1	6
42492	00	Z	200	26/ 85	27	0	63.3	-40.6	75.2	5
42492	12	Z	150	26/ 85	27	0	89.6	-77.1	118.2	8
42647	00	Z	200	23/ 73	14	0	71.1	-78.1	105.6	7
42701	12	Z	250	23/ 85	10	0	61.8	-59.9	86.1	5
42809	00	Z	100	23/ 88	20	0	118.7	-31.1	122.7	7
42867	00	Z	200	21/ 79	24	1	99.4	-36.1	105.7	8
42867	12	Z	150	21/ 79	21	0	103.5	-27.3	107.1	7
42874	00	Z	250	21/ 82	16	0	45.2	-77.1	89.3	5
42874	12	Z	250	21/ 82	16	0	66.1	-65.5	93.1	5
42971	00	Z	30	20/ 86	18	1	205.6	63.3	215.1	4
42971	12	Z	100	20/ 86	20	0	70.3	-93.4	116.9	6
43014	12	Z	150	20/ 75	13	0	89.1	34.3	95.5	5
43041	12	Z	200	19/ 82	17	0	60.3	-57.6	83.4	7
43150	00	Z	70	18/ 83	10	0	106.9	75.0	130.6	8
43192	00	Z	150	15/ 74	11	1	87.1	-98.9	131.8	6
43279	00	Z	150	13/ 80	18	0	68.9	-88.7	112.3	6
43279	12	Z	200	13/ 80	18	0	58.4	-83.3	101.8	7
43285	12	Z	30	13/ 75	11	0	144.7	216.5	260.4	4
43295	12	Z	100	13/ 78	9	2	90.9	110.6	143.1	4
43353	00	Z	200	10/ 76	18	0	73.1	-54.1	91.0	4
43369	00	Z	150	8/ 73	18	0	69.6	-89.2	113.1	8
43371	00	Z	50	8/ 77	16	1	108.9	-236.1	260.0	10
43371	12	Z	50	8/ 77	17	0	137.8	-90.4	164.8	9
54337	00	Z	50	41/ 121	12	0	176.0	43.9	181.4	4
54497	00	Z	30	40/ 124	16	0	87.1	196.4	214.9	6
56778	00	Z	100	25/ 103	27	0	36.2	116.6	122.0	5
56778	12	Z	100	25/ 103	21	1	50.1	106.0	117.2	4
60490	12	Z	400	36/ -1	2	19	8.0	-166.0	166.2	8
61902	12	Z	100	-8/ -14	16	2	64.0	166.5	178.4	6
62414	00	Z	70	24/ 33	24	3	111.0	124.5	166.8	5
63450	12	Z	700	9/ 39	19	0	11.7	46.3	47.8	5
83612	12	Z	30	-20/ -55	14	0	52.0	178.2	185.7	4
89009	00	Z	250	-90/ 0	23	1	56.9	60.1	82.8	6
89050	00	Z	400	-62/ -59	18	0	52.4	54.8	75.8	8
89642	00	Z	850	-67/ 140	26	0	38.8	-26.0	46.7	4
89664	00	Z	850	-78/ 167	22	0	17.1	-49.1	52.0	4
89664	12	Z	850	-78/ 167	19	0	21.9	-52.6	57.0	5
96163	00	Z	150	-1/ 100	19	0	102.8	8.3	103.1	7
96237	00	Z	150	-2/ 106	17	0	117.0	-62.8	132.8	8
97724	00	Z	200	-4/ 128	22	1	96.3	67.0	117.3	5
97724	12	Z	200	-4/ 128	22	0	93.2	129.5	159.6	5

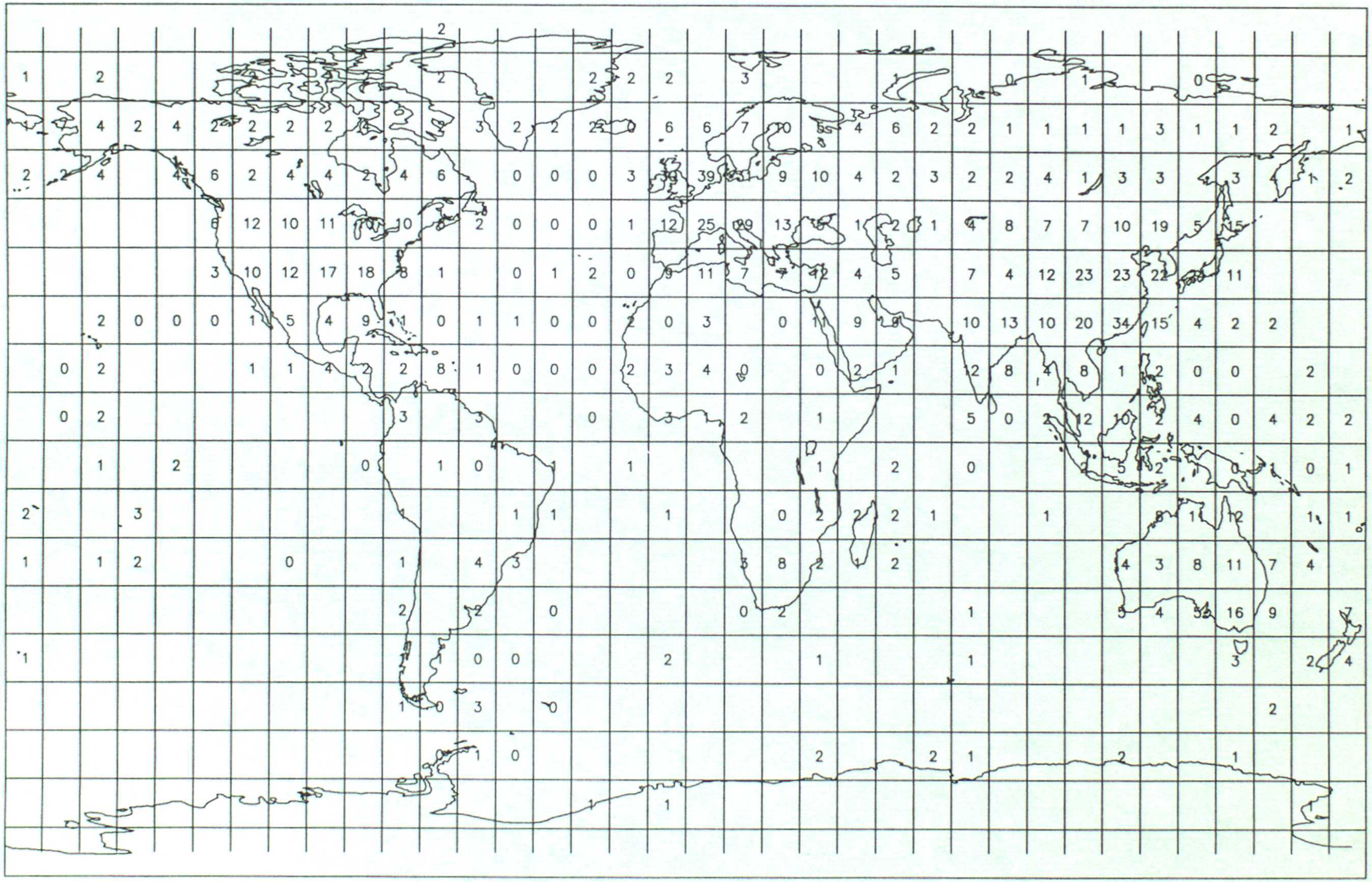
AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – NOVEMBER 1996

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1334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2 2 4 4 6 2 4 4 2 4 6 0 0 0 3 30 39 31 9 10 4 2 3 2 2 4 1 3 3 2 3 4 1 2
6 12 10 11 10 10 2 0 0 0 1 12 25 29 13 15 1 2 1 4 8 7 7 10 19 5 15
3 10 12 17 18 8 1 0 1 2 0 9 11 7 7 12 4 5 7 4 12 23 23 22 28 11
2 0 0 0 1 5 4 9 1 0 1 1 0 0 2 0 3 0 11 9 9 10 13 10 20 34 15 4 2 2
0 2 1 1 4 2 2 8 1 0 0 0 2 3 4 0 0 2 1 12 8 4 8 1 2 0 0 2
0 2 3 3 0 3 1 2 1 5 0 2 12 10 2 4 0 4 2 2
1 2 0 1 0 1 1 1 2 0 2 5 2 1 0 1 0 1
2 3 1 1 1 1 1 0 2 2 2 1 1 8 11 12 1 1
1 1 2 0 1 4 3 3 8 2 1 2 4 3 8 11 7 4
2 2 0 0 2 1 5 4 53 16 9 7
1 1 1 0 0 2 2 1 1 3 2 4
1 0 3 0 2
1 0 2 2 1 2 1
1 1 1 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

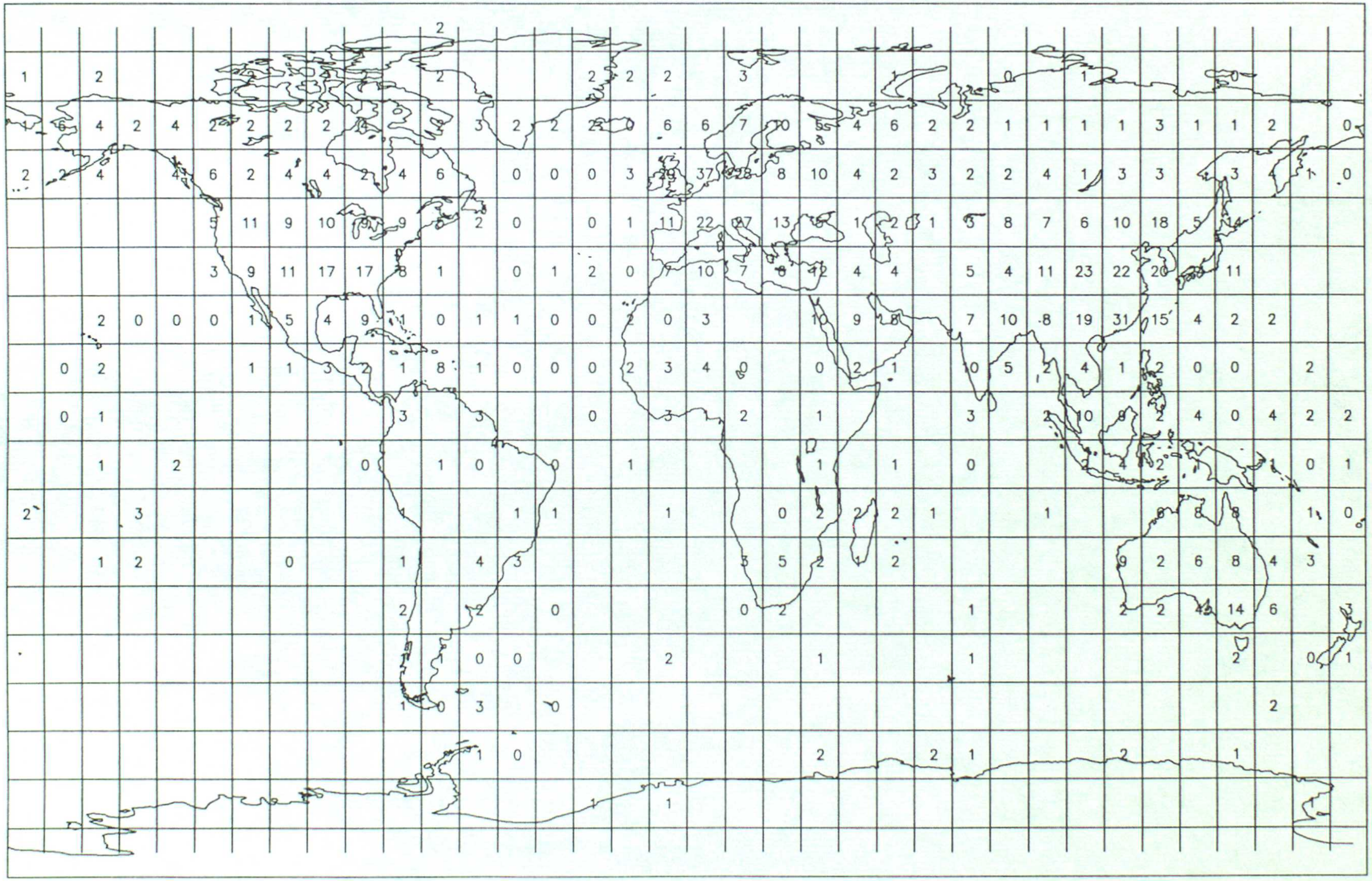
WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
42369	12	V	100	27/ 81	16	0	12	13.2	3.6	16.9	1
42397	00	V	200	27/ 88	16	0	18	-10.6	4.0	21.5	3
42397	12	V	200	27/ 88	13	0	0	-13.6	-1.4	15.9	1
47058	00	V	400	39/ 126	16	0	18	-15.1	-0.7	20.1	2
47058	12	V	400	39/ 126	15	0	26	-21.1	1.6	22.9	2
54337	12	V	150	41/ 121	19	0	10	2.1	5.8	15.3	1
54497	12	V	100	40/ 124	19	0	26	3.6	5.3	17.0	1
62019	12	V	250	31/ 17	19	0	15	-19.5	4.4	23.3	4
89055	12	V	100	-64/ -57	10	0	20	7.0	-3.5	16.9	1

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – NOVEMBER 1996 FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1205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2 2 4 4 6 2 4 4 2 4 6 0 0 0 3 29 37 23 8 10 4 2 3 2 2 4 1 3 3 3 4 1 0
5 11 9 10 9 9 2 0 0 1 11 22 27 13 8 1 2 1 3 8 7 6 10 18 5 4
3 9 11 17 17 8 1 0 1 2 0 7 10 7 6 42 4 4 5 4 11 23 22 20 3 11
2 0 0 0 1 5 4 9 1 0 1 1 0 0 2 0 3 10 9 8 7 10 8 19 31 15 4 2 2
0 2 1 1 3 2 1 8 1 0 0 0 2 3 4 0 0 2 1 10 5 2 4 1 2 0 0 2
0 1 3 3 0 3 2 1 3 2 10 9 2 4 0 4 2 2
1 2 0 1 0 0 1 1 1 0 2 4 2 1 0 1
2 3 1 1 1 1 0 2 2 2 1 1 8 8 8 1 0
1 2 0 1 4 3 3 5 2 1 2 9 2 6 8 4 3
2 2 0 0 2 1 2 2 4 14 6 3
1 0 0 2 1 1 2 0 1
1 0 3 0 2
1 0 2 2 1 2 1
1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for radiosonde TEMPs.
Area monitored	:90°N - 90°S, 180°W - 180°E.
Standard of comparison	:Background field from Bracknell global model.
Observation times	:00 UTC and 12 UTC.
Level(s) monitored	:Standard levels between 500.0 - 150.0 hPa
Element monitored	:WIND DIRECTION in degrees

Parameters monitored

:NUM OBS	:Average number of observations at all levels.
:BIAS	:Mean difference of observations from background values from all levels.
:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
16144	12	DD	45/ 12	27	12.5	6.6	20.5
48407	00	DD	15/ 105	14	-10.2	7.4	26.3
48657	00	DD	4/ 103	17	12.1	9.5	22.0
48698	00	DD	1/ 104	17	10.2	9.5	22.3
48698	12	DD	1/ 104	16	10.0	7.3	19.8
53614	00	DD	38/ 106	28	-12.3	4.8	8.1
55591	00	DD	30/ 91	27	-26.7	5.5	10.5
55591	12	DD	30/ 91	21	-28.6	8.5	13.8
59134	12	DD	24/ 118	27	10.6	3.5	10.8
62337	00	DD	31/ 34	23	11.3	5.1	12.3
62337	12	DD	31/ 34	23	11.0	5.9	14.2
72476	00	DD	39/-109	24	-15.1	9.3	15.5
72476	12	DD	39/-109	24	-11.3	8.5	18.2
96471	12	DD	6/ 116	16	11.4	9.3	26.2

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: November, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

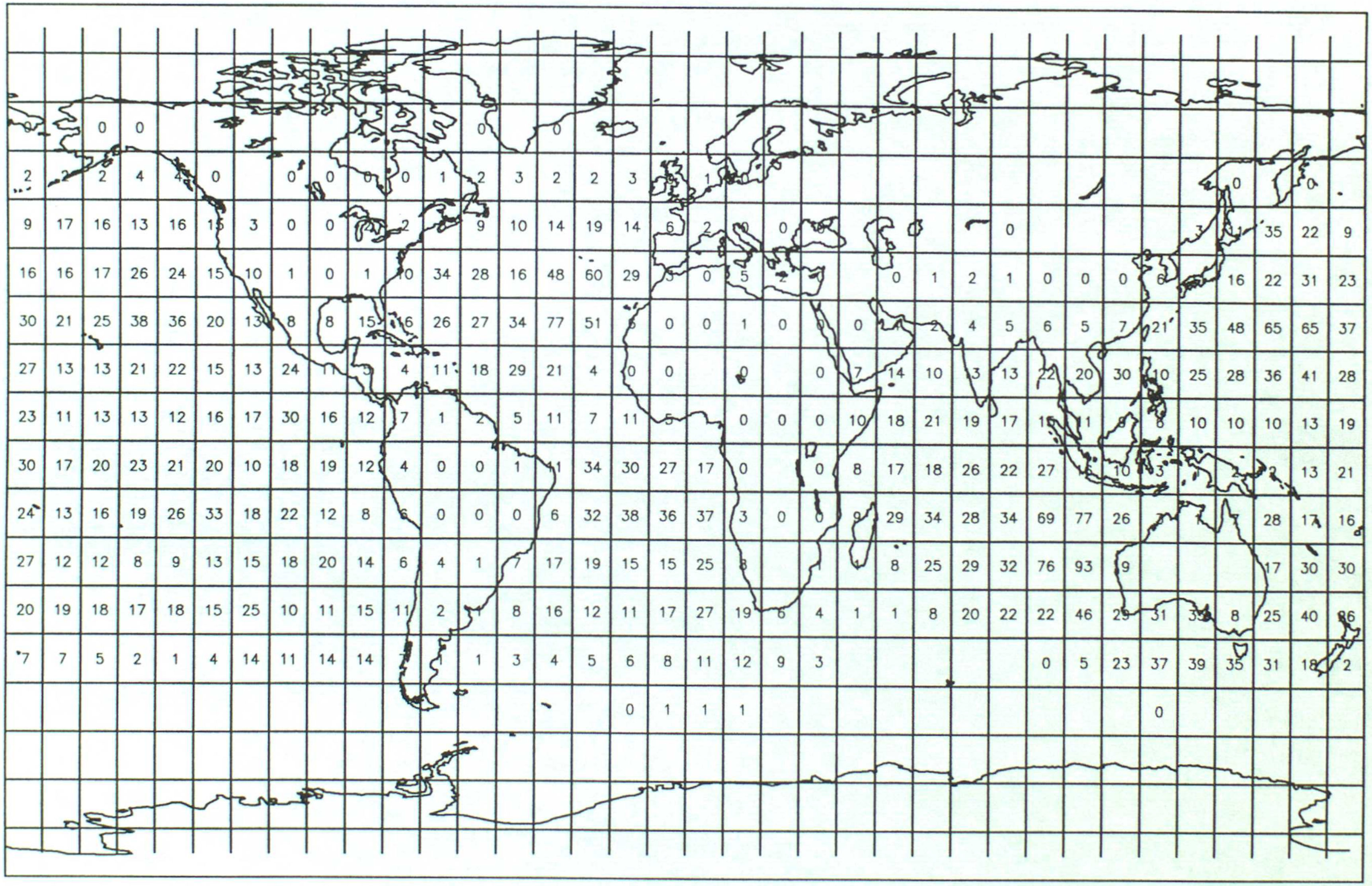
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
NOVEMBER 1996


0 0 0 0 0
2 2 2 4 4 0 0 0 0 0 1 2 3 2 2 3 6 1 0 0
9 17 16 13 16 15 3 0 0 2 9 10 14 19 14 6 2 0 0 0 0 3 1 35 22 9
16 16 17 26 24 15 10 1 0 1 0 34 28 16 48 60 29 5 0 5 2 0 1 2 1 0 0 0 6 16 22 31 23
30 21 25 38 36 20 13 8 8 15 16 26 27 34 77 51 5 0 0 1 0 0 0 1 2 4 5 6 5 7 21 35 48 65 65 37
27 13 13 21 22 15 13 24 11 3 4 11 18 29 21 4 0 0 0 0 7 14 10 13 13 22 20 30 10 25 28 36 41 28
23 11 13 13 12 16 17 30 16 12 7 1 2 5 11 7 11 5 0 0 0 10 18 21 19 17 15 11 8 6 10 10 10 13 19
30 17 20 23 21 20 10 18 19 12 4 0 0 1 11 34 30 27 17 0 0 8 17 18 26 22 27 10 3 2 2 13 21
24 13 16 19 26 33 18 22 12 8 6 0 0 0 6 32 38 36 37 3 0 0 9 29 34 28 34 69 77 26 7 7 7 28 17 16
27 12 12 8 9 13 15 18 20 14 6 4 1 7 17 19 15 15 25 8 1 1 8 25 29 32 76 93 9 17 30 30
20 19 18 17 18 15 25 10 11 15 11 2 1 8 16 12 11 17 27 19 6 4 1 1 8 20 22 22 46 29 31 33 8 25 40 36
7 7 5 2 1 4 14 11 14 14 7 1 1 3 4 5 6 8 11 12 9 3 0 5 23 37 39 35 31 18 2
0 1 1 1 0

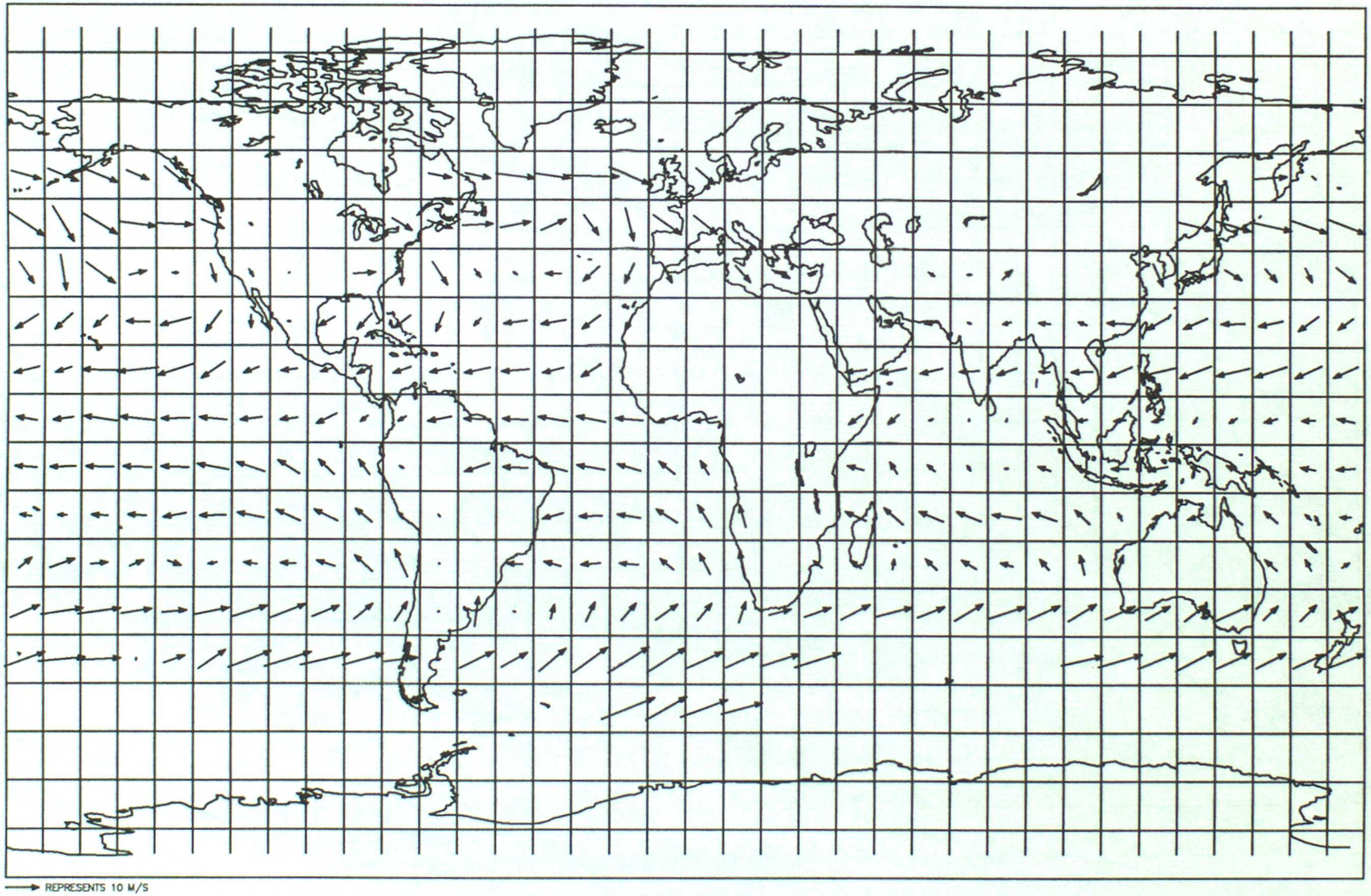
SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA

NOVEMBER 1996

ALL OBSERVATIONS

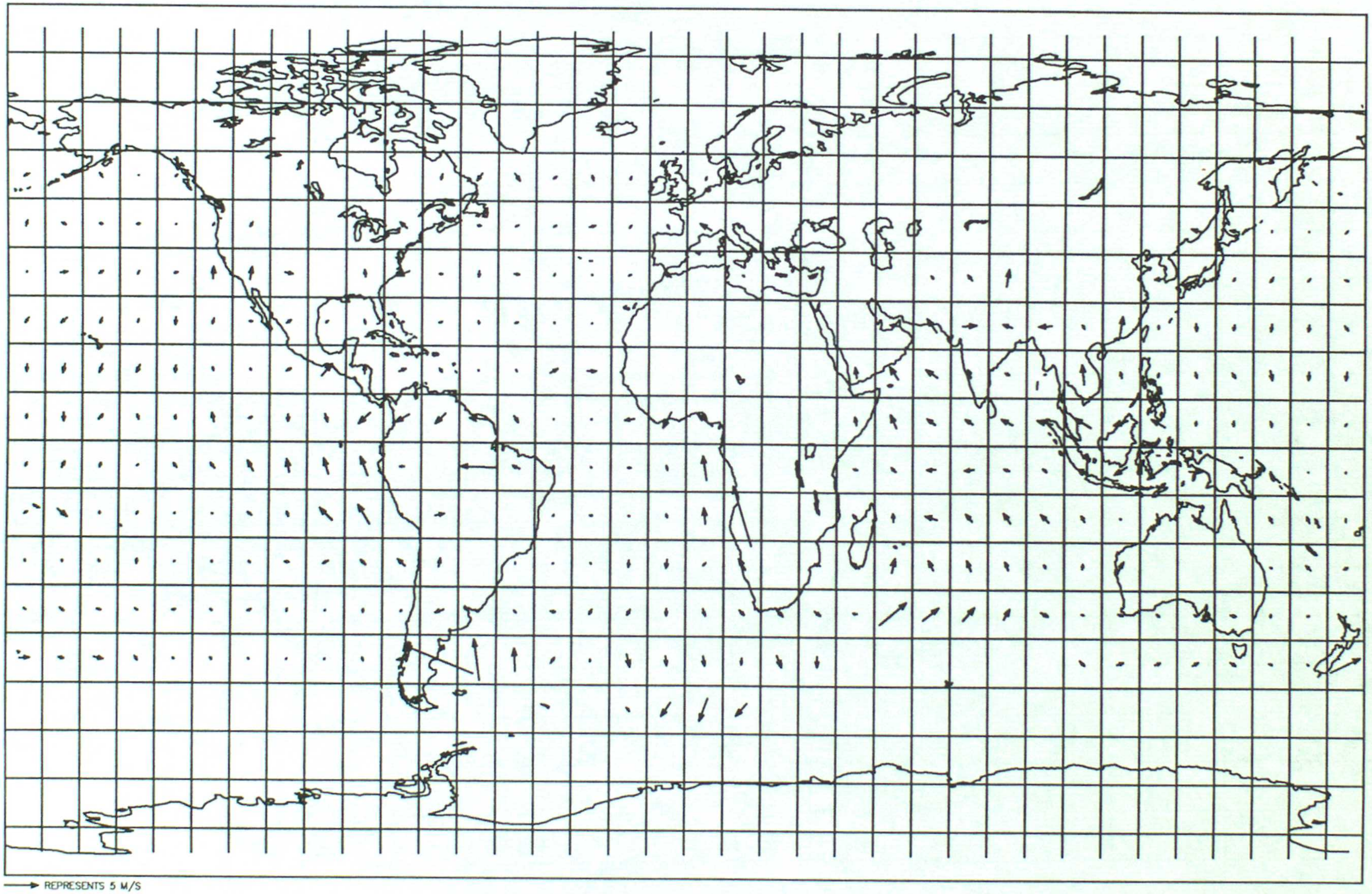
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 11

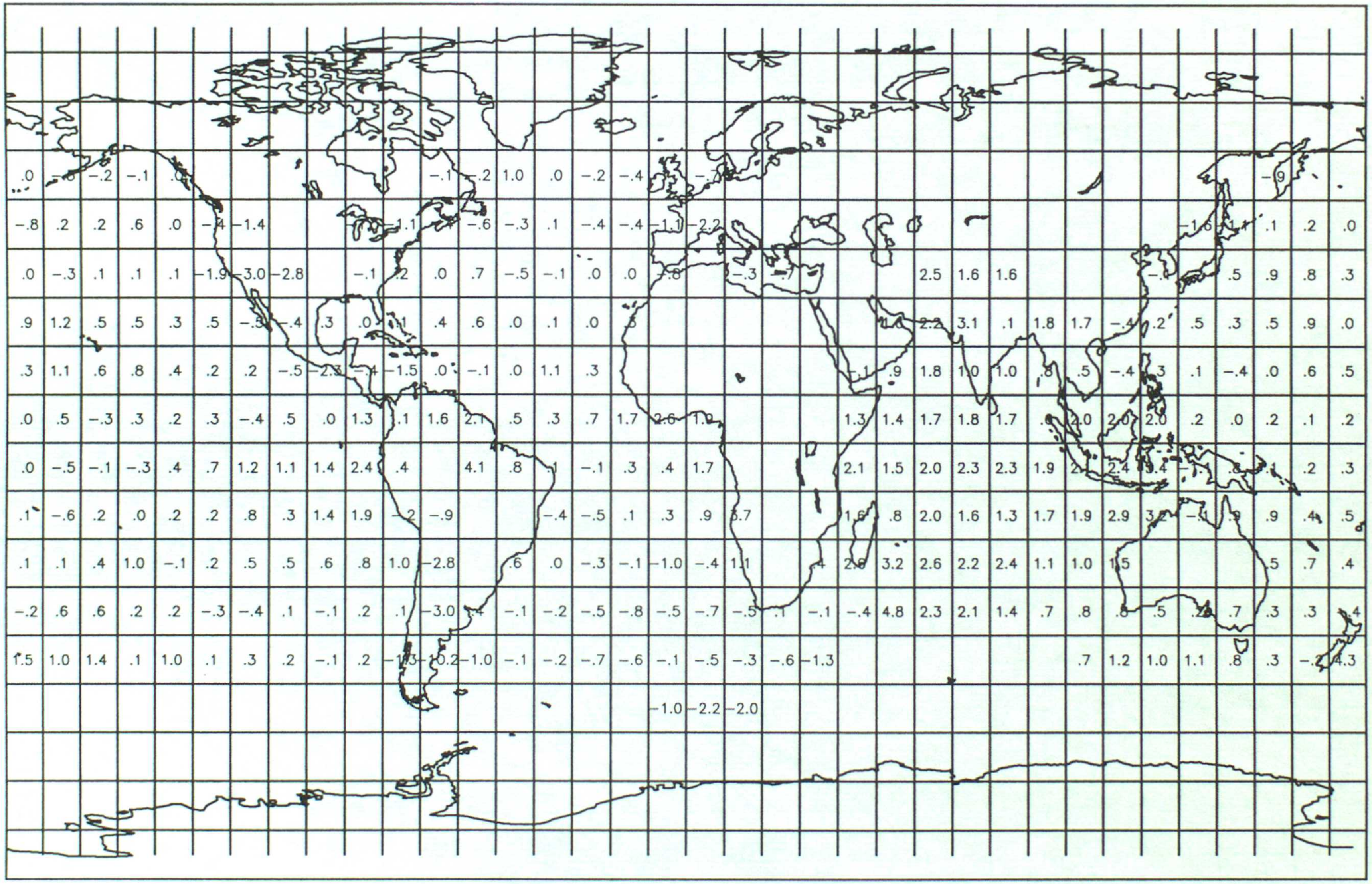

REPRESENTS 10 M/S

SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA
NOVEMBER 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

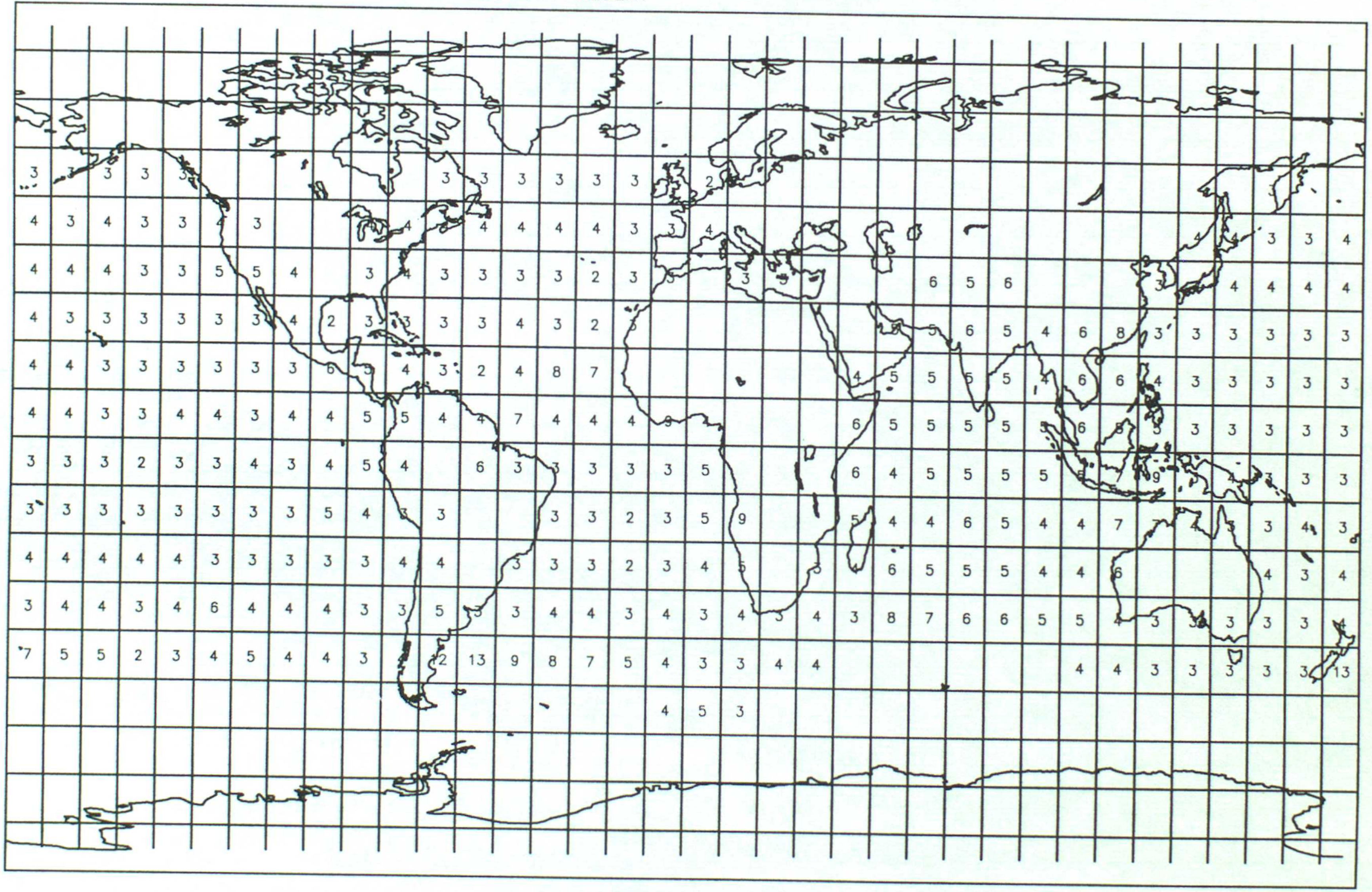
FIGURE 12



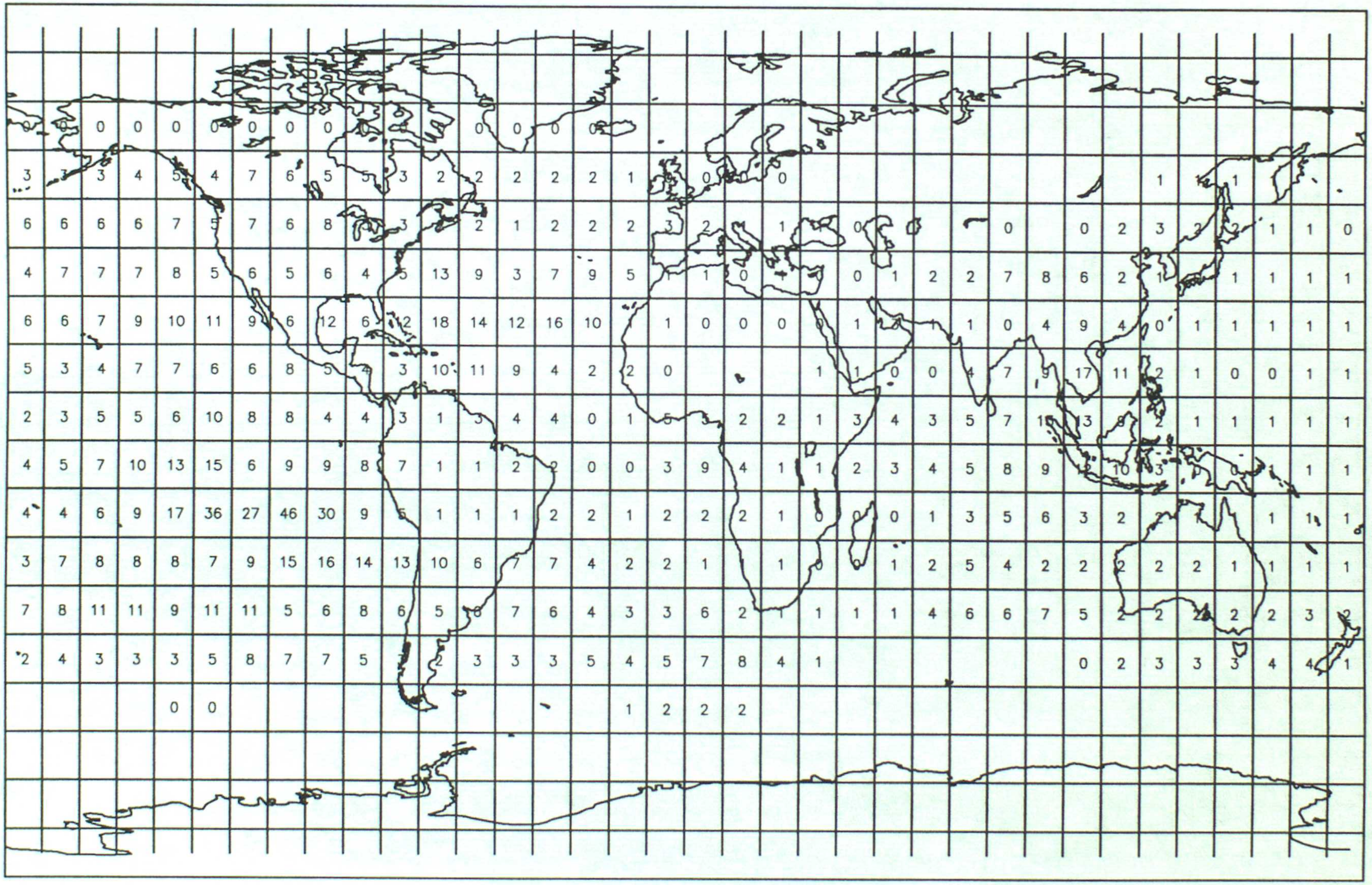
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
NOVEMBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


.0 −.2 −.1 −.1 −.2 1.0 .0 −.2 −.4 −.7 −.9
−.8 .2 .2 .6 .0 −.4 −1.4 −1.1 −.6 −.3 .1 −.4 −.4 −1.1 −2.2 −1.6 −1.4 .1 .2 .0
.0 −.3 .1 .1 .1 −1.9 −3.0 −2.8 −.1 .2 .0 .7 −.5 −.1 .0 .0 −.8 −.3 −.7 2.5 1.6 1.6 .5 .9 .8 .3
.9 1.2 .5 .5 .3 .5 −.5 −.4 .3 .0 .1 .4 .6 .0 .1 .0 .5 1.6 2.2 3.1 .1 1.8 1.7 −.4 .2 .5 .3 .5 .9 .0
.3 1.1 .6 .8 .4 .2 .2 −.5 −2.3 −.4 −1.5 .0 −.1 .0 1.1 .3 −.1 .9 1.8 1.0 1.0 .8 .5 −.4 .3 .1 −.4 .0 .6 .5
.0 .5 −.3 .3 .2 .3 −.4 .5 .0 1.3 .1 1.6 2.1 .5 .3 .7 1.7 2.6 1.0 1.3 1.4 1.7 1.8 1.7 .6 2.0 2.0 2.0 .2 .0 .2 .1 .2
.0 −.5 −.1 −.3 .4 .7 1.2 1.1 1.4 2.4 .4 4.1 .8 .1 −.1 .3 .4 1.7 2.1 1.5 2.0 2.3 2.3 1.9 2.4 3.4 .8 .2 .3
.1 −.6 .2 .0 .2 .2 .8 .3 1.4 1.9 −.2 −.9 −.4 −.5 .1 .3 .9 3.7 1.6 .8 2.0 1.6 1.3 1.7 1.9 2.9 3.2 .9 .9 .4 .5
.1 .1 .4 1.0 −.1 .2 .5 .5 .6 .8 1.0 −2.8 .6 .0 −.3 −.1 −1.0 −.4 1.1 .4 2.8 3.2 2.6 2.2 2.4 1.1 1.0 1.5 .5 .7 .4
−.2 .6 .6 .2 .2 −.3 −.4 .1 −.1 .2 .1 −3.0 .4 −.1 −.2 −.5 −.8 −.5 −.7 −.5 .1 −.1 −.4 4.8 2.3 2.1 1.4 .7 .8 .8 .5 .7 .3 .3 .4
1.5 1.0 1.4 .1 1.0 .1 .3 .2 −.1 .2 −1.0 −.1 −.2 −.7 −.6 −.1 −.5 −.3 −.6 −1.3 .7 1.2 1.0 1.1 .8 .3 −.2 4.3
−1.0 −2.2 −2.0

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
NOVEMBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

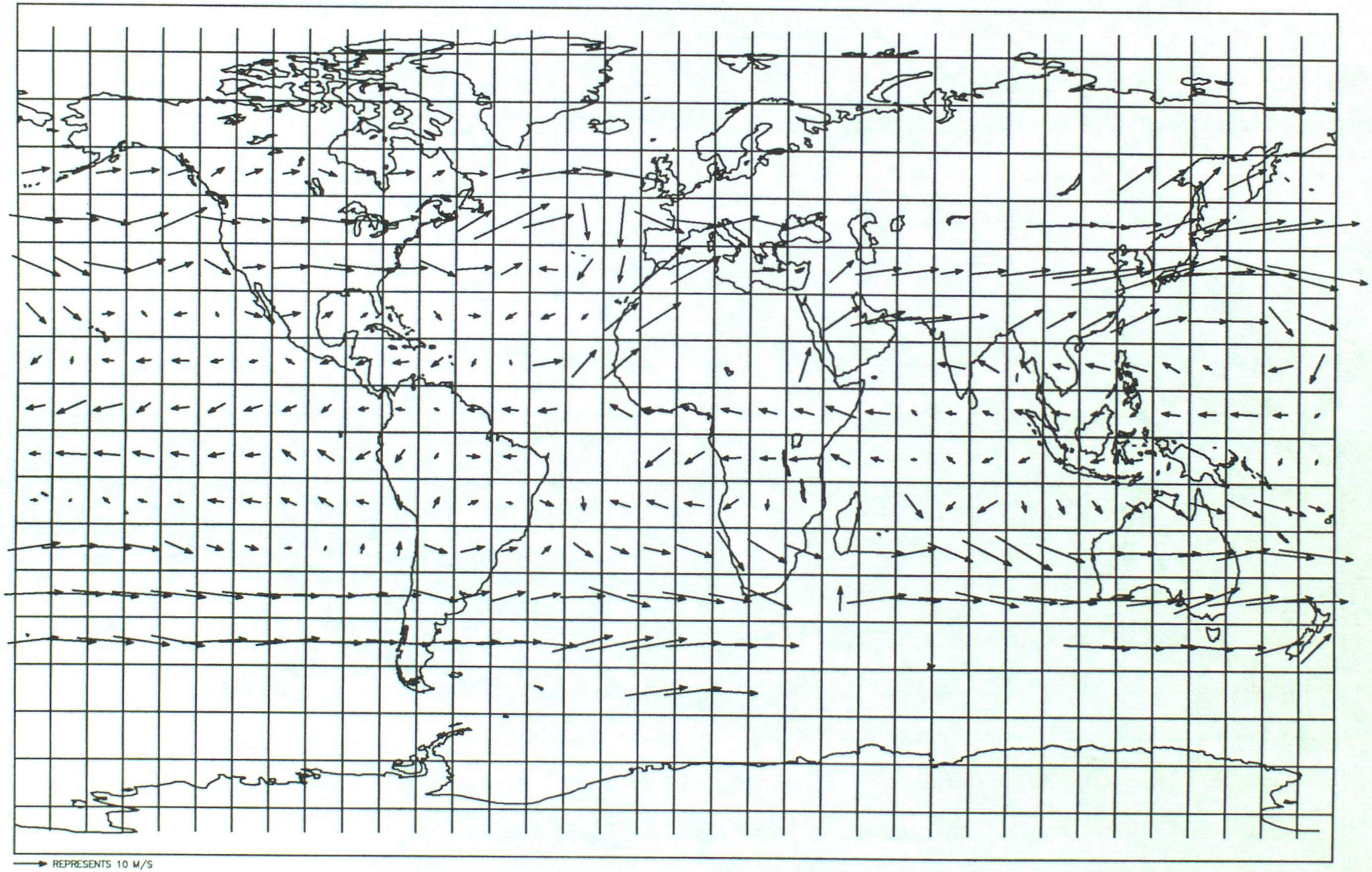

3 3 3 3 3 3 3 3 3 3 3 2 3
4 3 4 3 3 4 3 4 4 4 4 4 3 3 4 4 4 3 3 4
4 4 4 3 3 5 5 4 3 4 3 3 3 3 2 3 3 3 6 5 6 3 4 4 4 4
4 3 3 3 3 3 3 4 2 3 3 3 3 4 3 2 3 5 6 5 4 6 8 3 3 3 3 3 3
4 4 3 3 3 3 3 3 6 5 4 3 2 4 8 7 4 5 5 5 5 4 6 6 4 3 3 3 3 3
4 4 3 3 4 4 3 4 4 5 5 4 4 7 4 4 4 9 6 5 5 5 5 5 6 8 5 3 3 3 3 3
3 3 3 2 3 3 4 3 4 5 4 6 3 3 3 3 3 5 6 4 5 5 5 5 5 7 9 4 3 3 3
3 3 3 3 3 3 3 3 5 4 3 3 3 3 2 3 5 9 5 4 4 6 5 4 4 7 7 4 3 3 4 3
4 4 4 4 4 3 3 3 3 3 4 4 3 3 3 2 3 4 5 3 4 6 5 5 5 4 4 6 4 3 4
3 4 4 3 4 6 4 4 4 3 3 5 3 3 4 4 3 4 3 4 3 4 3 8 7 6 6 5 5 4 3 3 3 3 3 4
7 5 5 2 3 4 5 4 4 3 2 13 9 8 7 5 4 3 3 4 4 4 4 3 3 3 3 3 13
4 5 3

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
NOVEMBER 1996

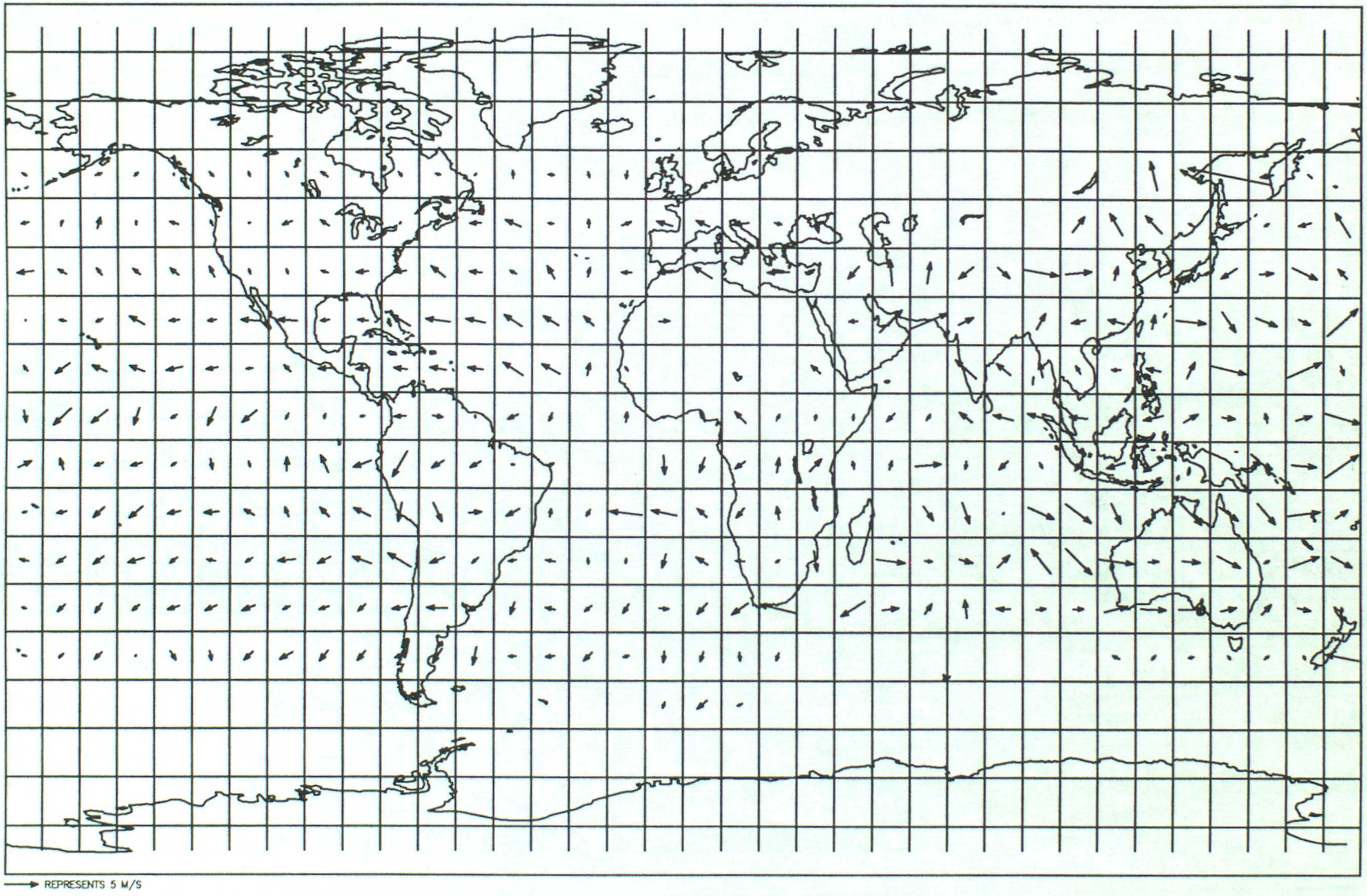

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
3 3 3 4 5 4 7 6 5 5 3 2 2 2 2 2 1 0 0 0 0 1 1
6 6 6 6 7 5 7 6 8 3 2 1 2 2 2 3 2 1 1 0 0 0 2 3 2 2 1 1 0
4 7 7 7 8 5 6 5 6 4 5 13 9 3 7 9 5 1 1 0 0 0 1 2 2 7 8 6 2 1 1 1 1 1
6 6 7 9 10 11 9 6 12 6 12 18 14 12 16 10 1 1 0 0 0 0 1 1 1 0 4 9 4 0 1 1 1 1 1
5 3 4 7 7 6 6 8 5 4 3 10 11 9 4 2 2 0 1 1 0 0 4 7 9 17 11 2 1 0 0 1 1
2 3 5 5 6 10 8 8 4 4 3 1 3 4 4 0 1 5 3 2 2 1 3 4 3 5 7 15 13 8 2 1 1 1 1 1
4 5 7 10 13 15 6 9 9 8 7 1 1 2 2 0 0 3 9 4 1 1 2 3 4 5 8 9 12 10 3 0 0 1 1 1
4 4 6 9 17 36 27 46 30 9 5 1 1 1 2 2 1 2 2 2 1 0 0 0 1 3 5 6 3 2 2 1 1 1 1
3 7 8 8 8 7 9 15 16 14 13 10 6 7 7 4 2 2 1 1 0 0 1 2 5 4 2 2 2 2 2 1 1 1 1
7 8 11 11 9 11 11 5 6 8 6 5 6 7 6 4 3 3 6 2 1 1 1 1 4 6 6 7 5 2 2 2 2 2 3 2
2 4 3 3 3 5 8 7 7 5 7 2 3 3 3 5 4 5 7 8 4 1 0 2 3 3 3 4 4 1
0 0 1 2 2 2

SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
NOVEMBER 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

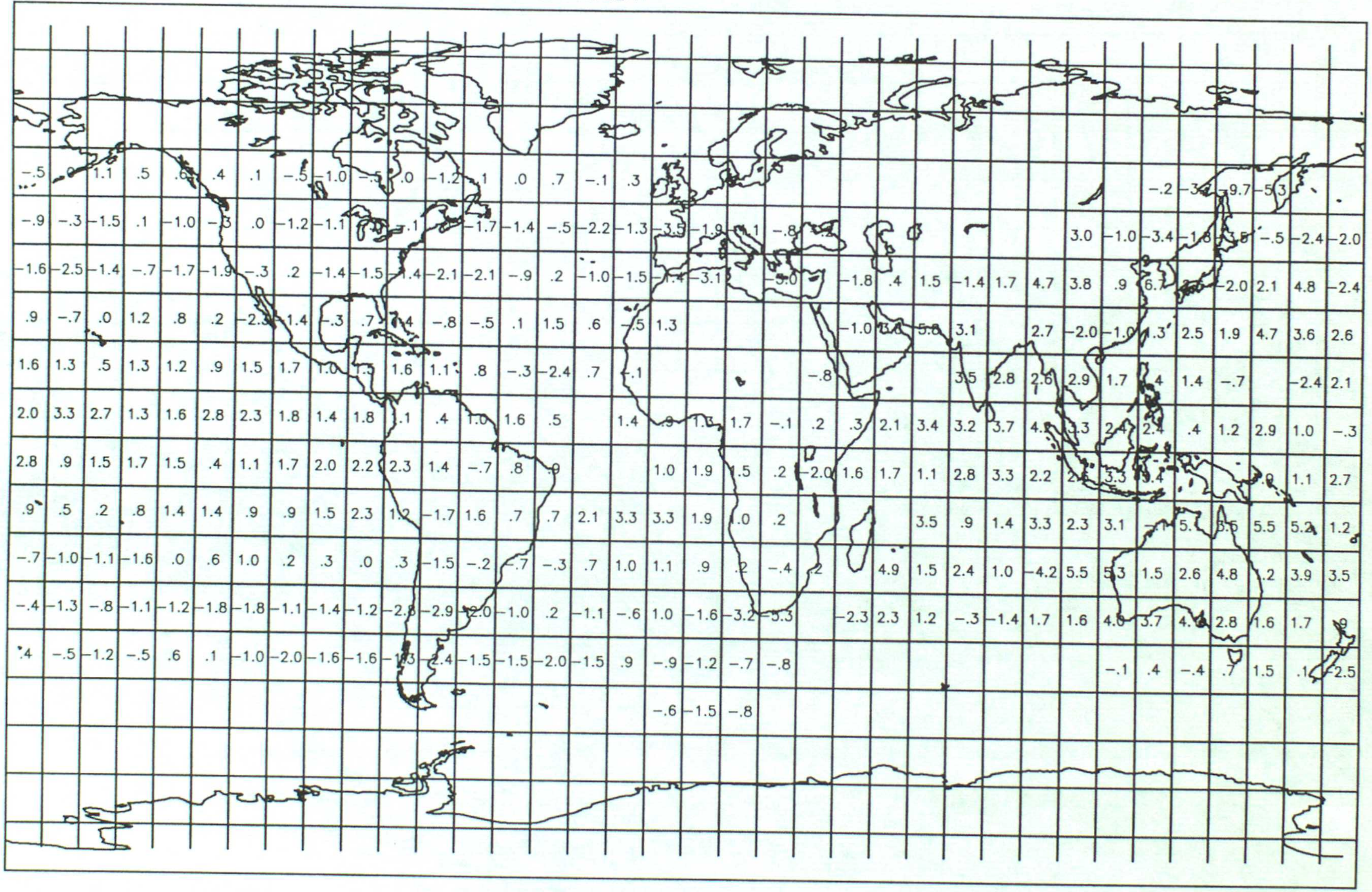
FIGURE 16


REPRESENTS 10 M/S

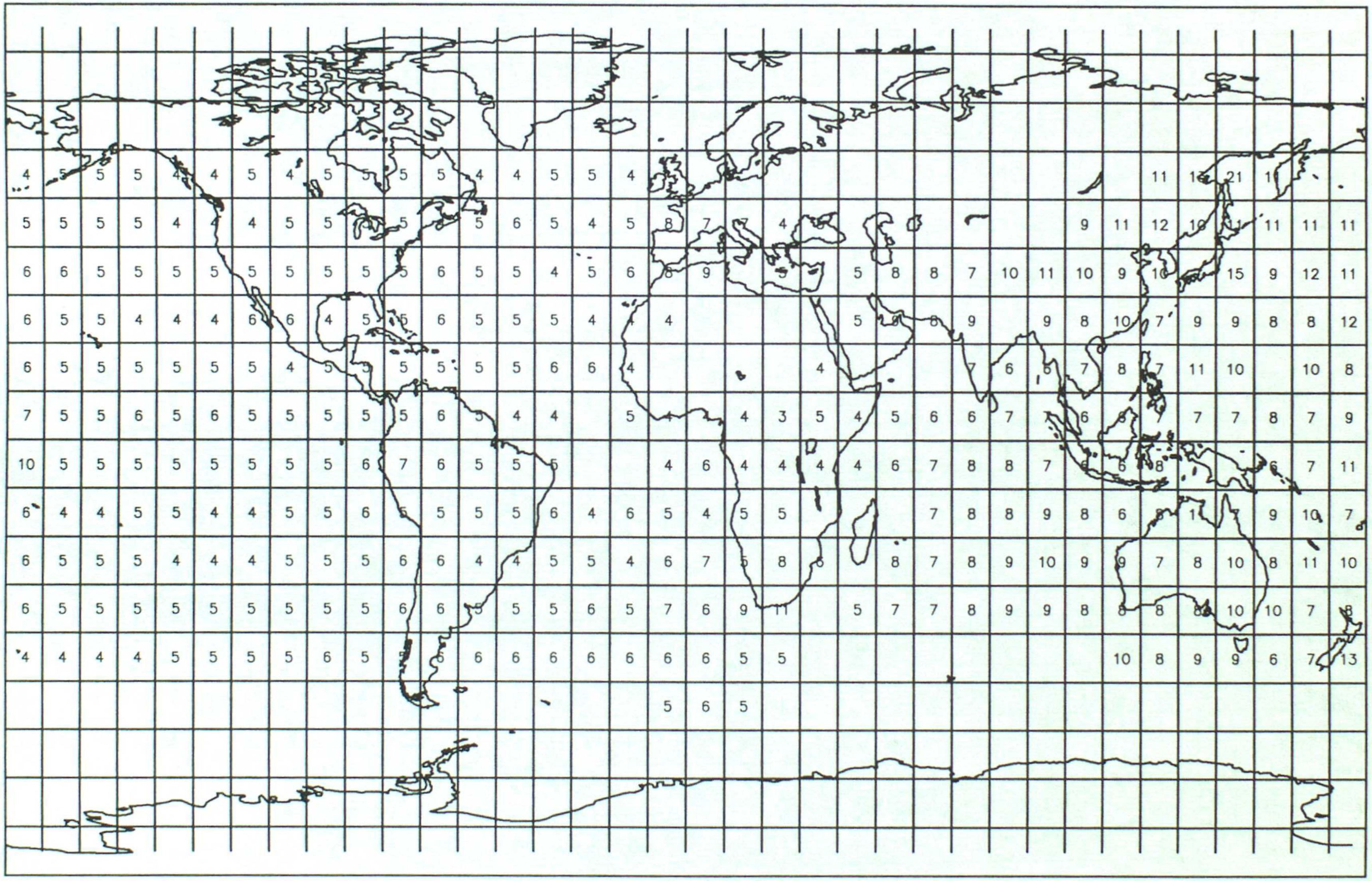
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA FIGURE 17
NOVEMBER 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



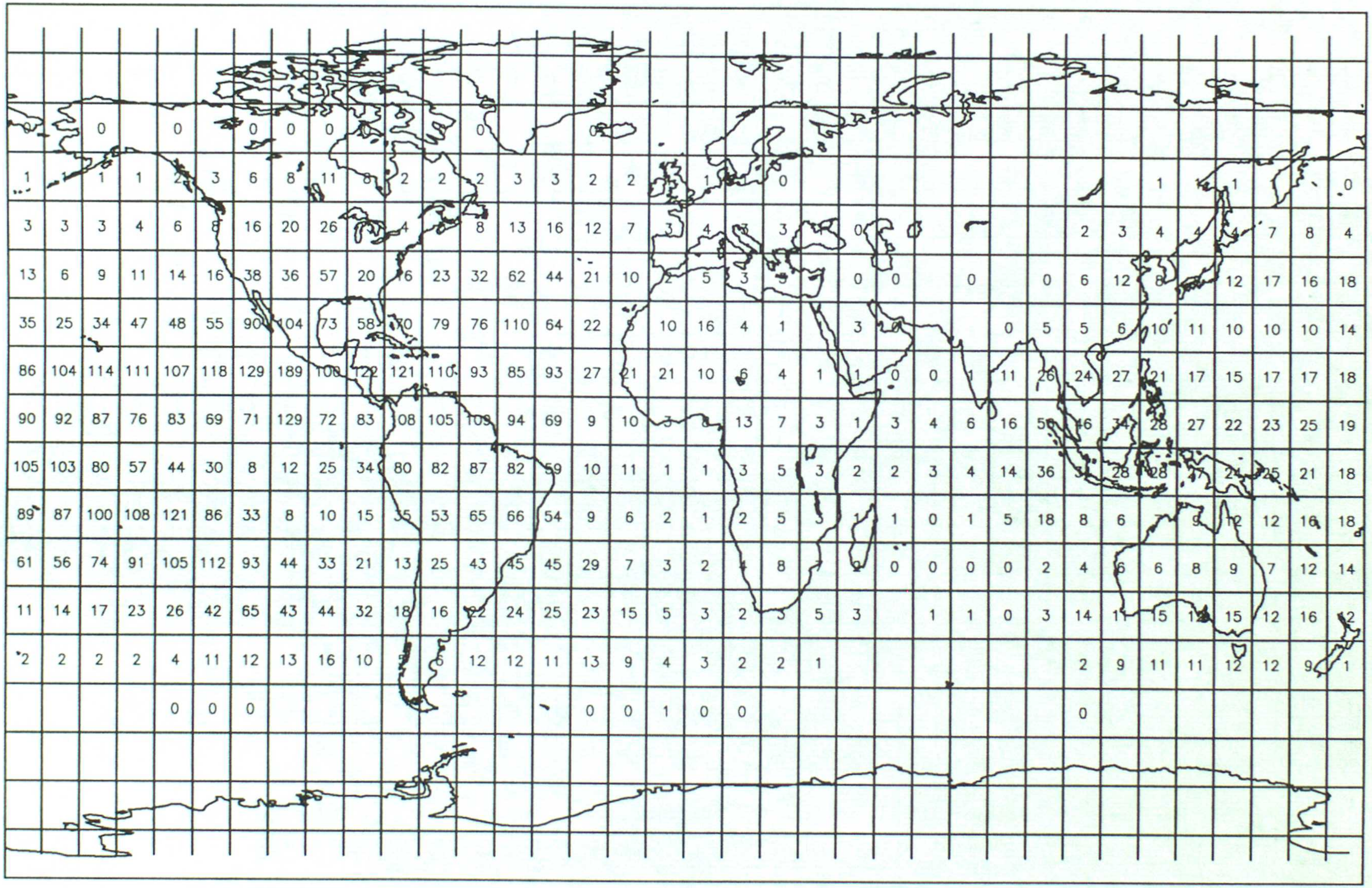
SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
NOVEMBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-.5 .0 1.1 .5 .6 .4 .1 -.5 -1.0 -.5 .0 -1.2 .1 .0 .7 -.1 .3 -.2 -3.4 -9.7 -5.3
-.9 -.3 -1.5 .1 -1.0 -.3 .0 -1.2 -1.1 .1 .1 -1.7 -1.4 -.5 -2.2 -1.3 -3.5 -1.9 .1 -.8 3.0 -1.0 -3.4 -1.8 .5 -.5 -2.4 -2.0
-1.6 -2.5 -1.4 -.7 -1.7 -1.9 -.3 .2 -1.4 -1.5 -1.4 -2.1 -2.1 -.9 .2 -1.0 -1.5 -1.4 -3.1 -5.0 -1.8 .4 1.5 -1.4 1.7 4.7 3.8 .9 6.7 -2.0 2.1 4.8 -2.4
.9 -.7 .0 1.2 .8 .2 -2.3 -1.4 -.3 .7 .4 -.8 -.5 .1 1.5 .6 -.5 1.3 -1.0 3.6 5.8 3.1 2.7 -2.0 -1.0 1.3 2.5 1.9 4.7 3.6 2.6
1.6 1.3 .5 1.3 1.2 .9 1.5 1.7 1.0 1.5 1.6 1.1 .8 -.3 -2.4 .7 -.1 -.8 3.5 2.8 2.6 2.9 1.7 .4 1.4 -.7 -2.4 2.1
2.0 3.3 2.7 1.3 1.6 2.8 2.3 1.8 1.4 1.8 .1 .4 1.0 1.6 .5 1.4 .9 1.3 1.7 -.1 .2 .3 2.1 3.4 3.2 3.7 4.2 3.3 2.4 2.4 .4 1.2 2.9 1.0 -.3
2.8 .9 1.5 1.7 1.5 .4 1.1 1.7 2.0 2.2 2.3 1.4 -.7 .8 .9 1.0 1.9 1.5 .2 -2.0 1.6 1.7 1.1 2.8 3.3 2.2 2.6 3.3 3.4 .9 1.1 2.7
.9 .5 .2 .8 1.4 1.4 .9 .9 1.5 2.3 1.2 -1.7 1.6 .7 .7 2.1 3.3 3.3 1.9 1.0 .2 3.5 .9 1.4 3.3 2.3 3.1 -.1 5.1 5.5 5.5 5.2 1.2
-.7 -1.0 -1.1 -1.6 .0 .6 1.0 .2 .3 .0 .3 -1.5 -.2 -.7 -.3 .7 1.0 1.1 .9 .2 -.4 .2 4.9 1.5 2.4 1.0 -4.2 5.5 5.3 1.5 2.6 4.8 .2 3.9 3.5
-.4 -1.3 -.8 -1.1 -1.2 -1.8 -1.8 -1.1 -1.4 -1.2 -2.8 -2.9 -2.0 -1.0 .2 -1.1 -.6 1.0 -1.6 -3.2 -5.3 -2.3 2.3 1.2 -.3 -1.4 1.7 1.6 4.0 -3.7 4.6 2.8 1.6 1.7 .9
.4 -.5 -1.2 -.5 .6 .1 -1.0 -2.0 -1.6 -1.6 -1.3 -2.4 -1.5 -1.5 -2.0 -1.5 .9 -.9 -1.2 -.7 -.8 -.1 .4 -.4 .7 1.5 .1 -2.5
-.6 -1.5 -.8

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
NOVEMBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


4 5 5 5 4 4 5 4 5 5 5 5 4 4 5 5 4 11 16 21 11
5 5 5 5 4 4 4 5 5 5 5 5 6 5 4 5 8 7 7 4 5 9 11 12 10 11 11 11 11
6 6 5 5 5 5 5 5 5 5 5 6 5 5 4 5 6 6 9 5 5 8 8 7 10 11 10 9 10 15 9 12 11
6 5 5 4 4 4 6 6 4 5 5 6 5 5 5 4 4 4 5 9 8 9 9 8 10 7 9 9 8 8 12
6 5 5 5 5 5 5 4 5 5 5 5 5 6 6 4 4 7 6 6 7 8 7 11 10 10 8
7 5 5 6 5 6 5 5 5 5 5 6 5 4 4 5 4 4 4 3 5 4 5 6 6 7 7 6 8 7 7 7 8 7 9
10 5 5 5 5 5 5 5 5 6 7 6 5 5 5 4 6 4 4 4 4 6 7 8 8 7 6 6 8 6 7 11
6 4 4 5 5 4 4 5 5 6 5 5 5 5 6 4 6 5 4 5 5 7 8 8 9 8 6 8 1 7 9 10 7
6 5 5 5 4 4 4 5 5 5 6 6 4 4 5 5 4 6 7 5 8 6 8 7 8 9 10 9 9 7 8 10 8 11 10
6 5 5 5 5 5 5 5 5 5 6 6 5 5 5 6 5 7 6 9 11 5 7 7 8 9 9 8 8 8 8 10 10 7 8
4 4 4 4 5 5 5 5 6 5 5 6 6 6 6 6 6 6 6 5 5 10 8 9 9 6 7 13
5 6 5

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
NOVEMBER 1996


0 0 0 0 0 0 0 0
1 1 1 1 2 3 6 8 11 8 2 2 2 3 3 2 2 1 0 1 1 1 0
3 3 3 4 6 8 16 20 26 4 8 13 16 12 7 3 4 3 3 0 2 3 4 4 4 7 8 4
13 6 9 11 14 16 38 36 57 20 16 23 32 62 44 21 10 2 5 3 3 0 0 0 0 6 12 8 12 17 16 18
35 25 34 47 48 55 90 104 73 58 70 79 76 110 64 22 5 10 16 4 1 3 0 0 5 5 6 10 11 10 10 10 14
86 104 114 111 107 118 129 189 108 122 121 110 93 85 93 27 21 21 10 6 4 1 1 0 0 1 11 26 24 27 21 17 15 17 17 18
90 92 87 76 83 69 71 129 72 83 108 105 109 94 69 9 10 3 8 13 7 3 1 3 4 6 16 56 46 34 28 27 22 23 25 19
105 103 80 57 44 30 8 12 25 34 80 82 87 82 59 10 11 1 1 3 5 3 2 2 3 4 14 36 31 28 28 47 24 25 21 18
89 87 100 108 121 86 33 8 10 15 35 53 65 66 54 9 6 2 1 2 5 3 1 1 0 1 5 18 8 6 7 9 12 12 16 18
61 56 74 91 105 112 93 44 33 21 13 25 43 45 45 29 7 3 2 4 8 7 2 0 0 0 0 2 4 6 6 8 9 7 12 14
11 14 17 23 26 42 65 43 44 32 18 16 22 24 25 23 15 5 3 2 3 5 3 1 1 0 3 14 11 15 13 15 12 16 12
2 2 2 2 4 11 12 13 16 10 5 6 12 12 11 13 9 4 3 2 2 1 2 9 11 11 12 12 9 1
0 0 0 0 0 1 0 0 0

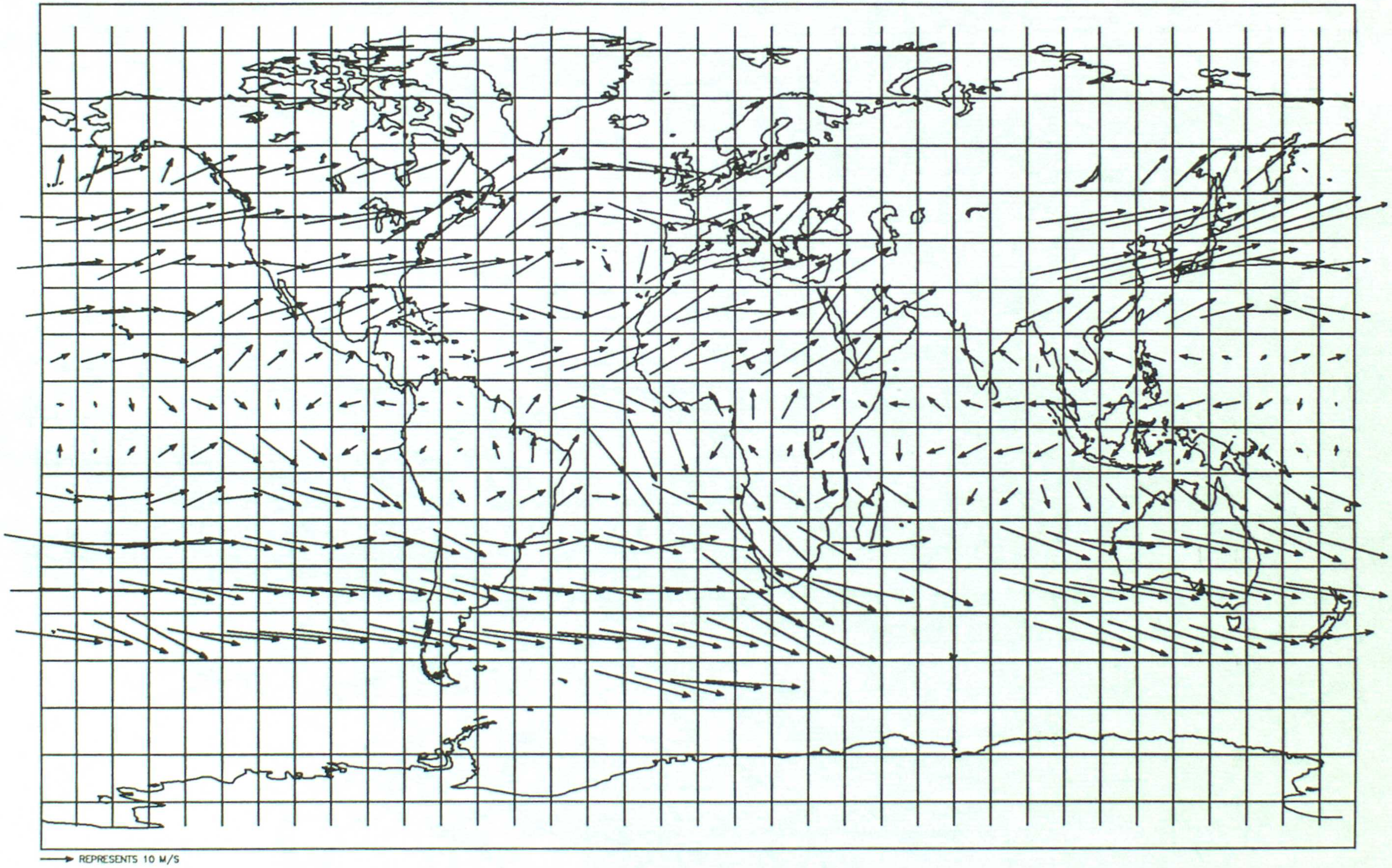
SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA

NOVEMBER 1996

ALL OBSERVATIONS

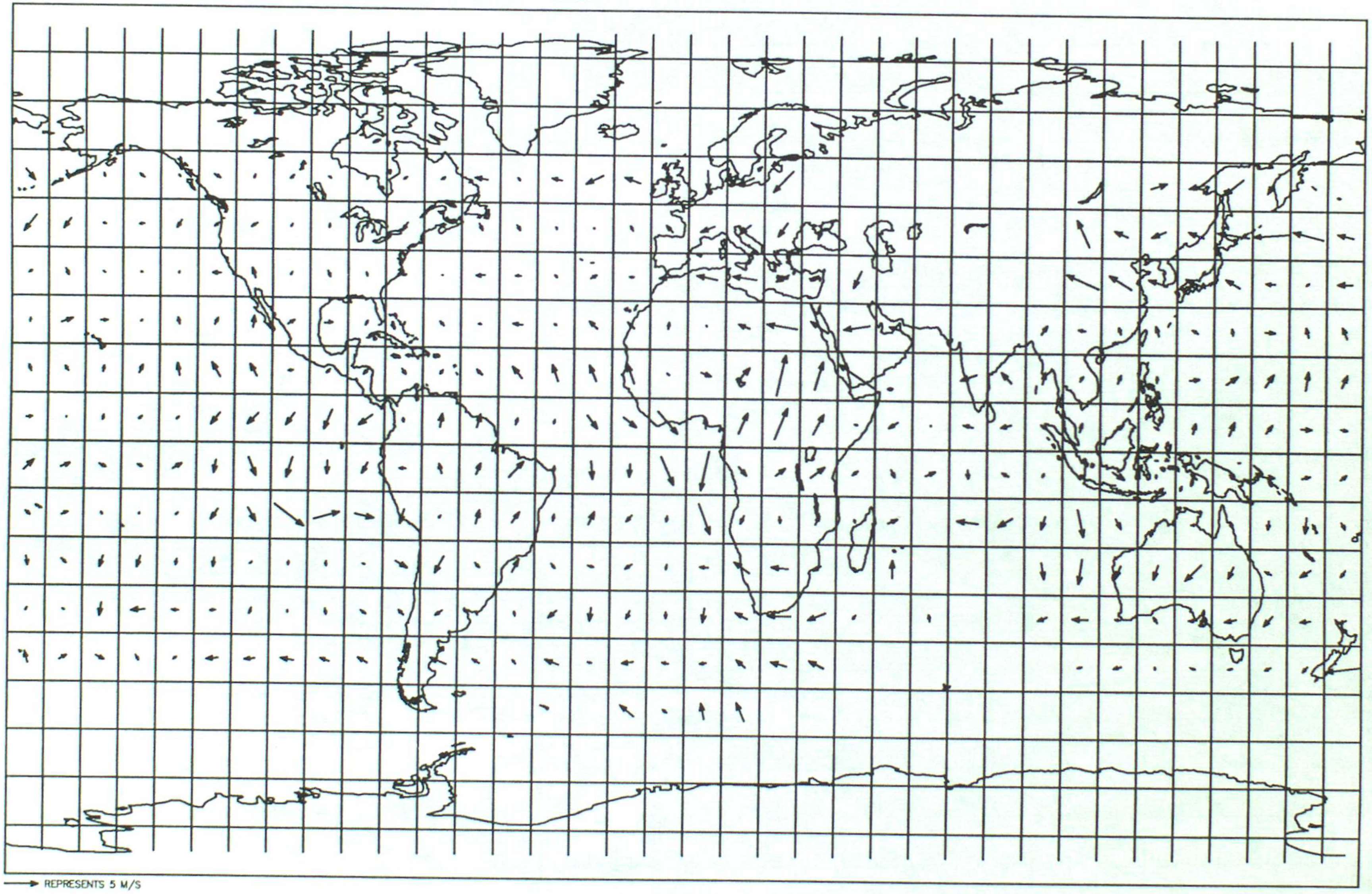
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21

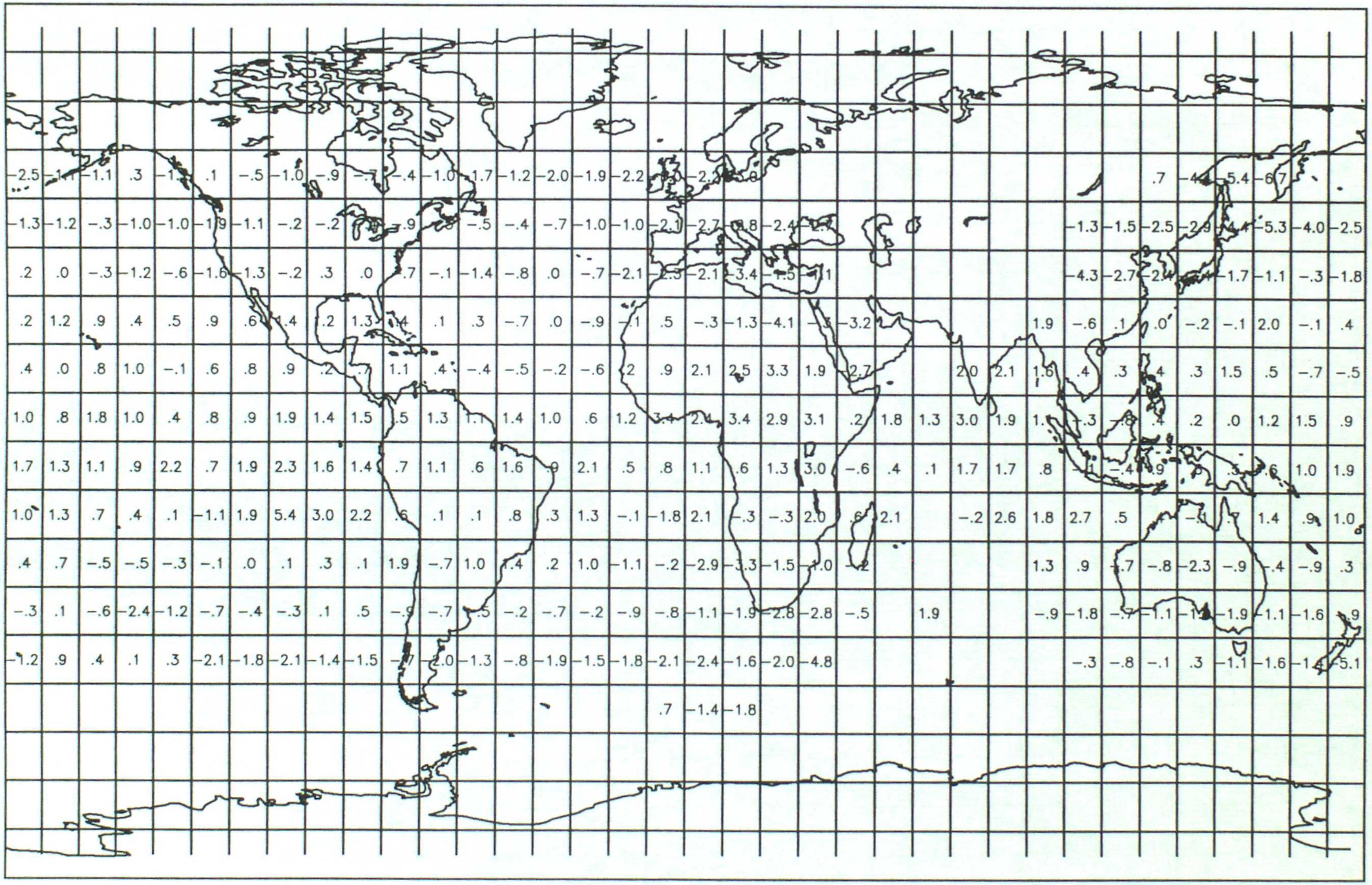

REPRESENTS 10 M/S

SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 101–400 HPA
NOVEMBER 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 22

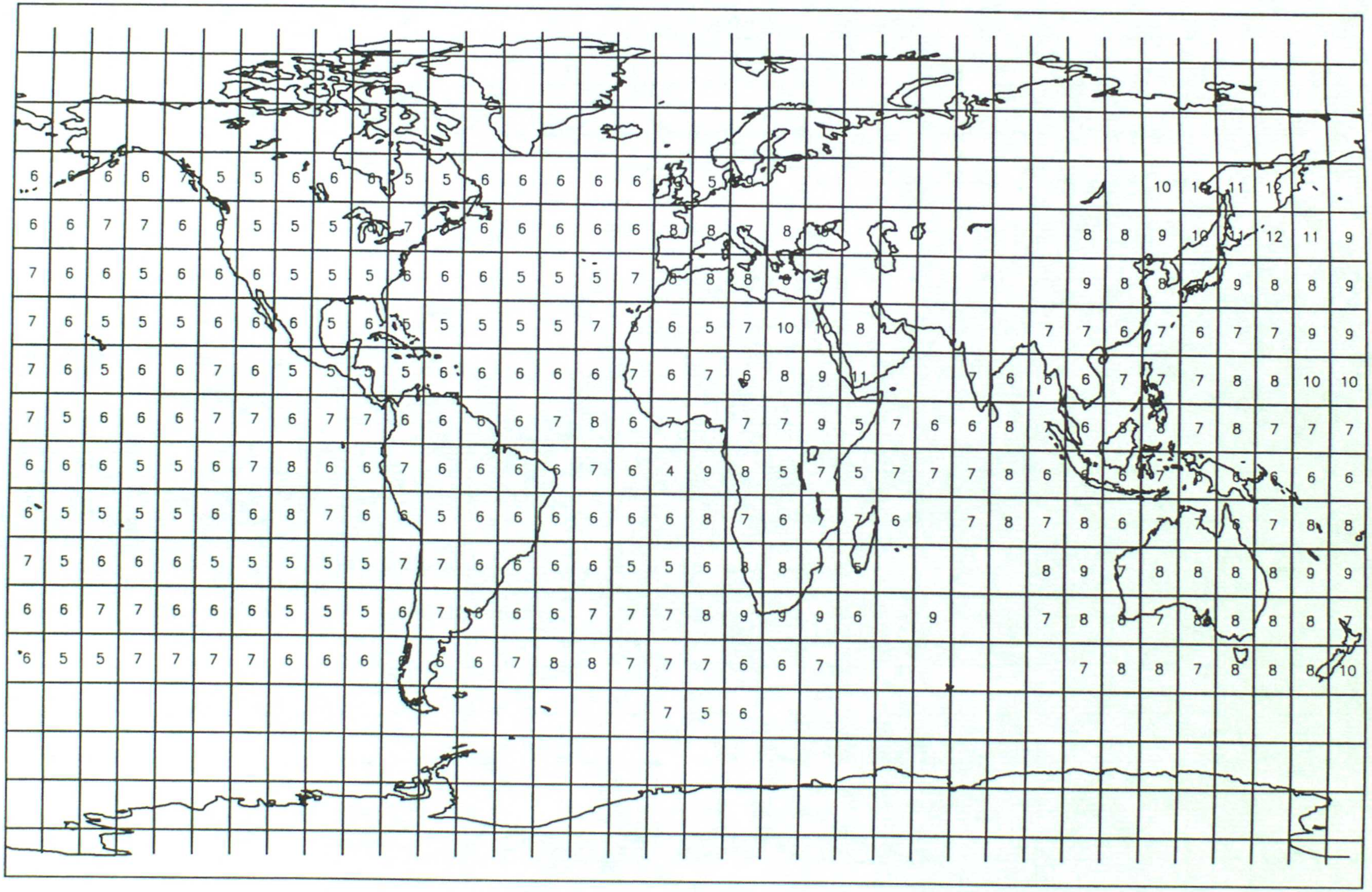


SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
NOVEMBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



-2.5 -1.1 .3 .1 -.5 -1.0 -.9 -.4 -1.0 1.7 -1.2 -2.0 -1.9 -2.2 .7 5.4 -6.7
-1.3 -1.2 -.3 -1.0 -1.0 -1.9 -1.1 -.2 -.2 .9 -.5 -.4 -.7 -1.0 -1.0 -2.1 -2.7 -.8 -2.4 -1.3 -1.5 -2.5 -2.9 -4.4 -5.3 -4.0 -2.5
.2 .0 -.3 -1.2 -.6 -1.6 -1.3 -.2 .3 .0 .7 -.1 -1.4 -.8 .0 -.7 -2.1 -2.1 -3.4 -1.5 -1.1 -4.3 -2.7 -2.4 -1.7 -1.1 -.3 -1.8
.2 1.2 .9 .4 .5 .9 .6 1.4 .2 1.3 .4 .1 .3 -.7 .0 -.9 -.1 .5 -.3 -1.3 -4.1 -3.2 1.9 -.6 .1 .0 -.2 -.1 2.0 -.1 .4
.4 .0 .8 1.0 -.1 .6 .8 .9 .2 1.1 .4 -.4 -.5 -.2 -.6 .2 .9 2.1 2.5 3.3 1.9 2.7 2.0 2.1 1.6 .4 .3 .4 .3 1.5 .5 -.7 -.5
1.0 .8 1.8 1.0 .4 .8 .9 1.9 1.4 1.5 .5 1.3 1.4 1.0 .6 1.2 2.4 3.4 2.9 3.1 .2 1.8 1.3 3.0 1.9 -.3 .4 .2 .0 1.2 1.5 .9
1.7 1.3 1.1 .9 2.2 .7 1.9 2.3 1.6 1.4 .7 1.1 .6 1.6 .9 2.1 .5 .8 1.1 .6 1.3 3.0 -.6 .4 .1 1.7 1.7 .8 -.4 .9 .6 1.0 1.9
1.0 1.3 .7 .4 .1 -1.1 1.9 5.4 3.0 2.2 .6 .1 .1 .8 .3 1.3 -.1 -1.8 2.1 -.3 -.3 2.0 .6 2.1 -.2 2.6 1.8 2.7 .5 .7 1.4 .9 1.0
.4 .7 -.5 -.5 -.3 -.1 .0 .1 .3 .1 1.9 -.7 1.0 .4 .2 1.0 -1.1 -.2 -2.9 -3.3 -1.5 -1.0 -.2 1.3 .9 .7 -.8 -2.3 -.9 -.4 -.9 .3
-.3 .1 -.6 -2.4 -1.2 -.7 -.4 -.3 .1 .5 -.9 -.7 .5 -.2 -.7 -.2 -.9 -.8 -1.1 -1.9 -2.8 -2.8 -.5 1.9 -.9 -1.8 -.7 -1.1 -1.9 -1.1 -1.6 .9
-1.2 .9 .4 .1 .3 -2.1 -1.8 -2.1 -1.4 -1.5 -.7 -2.0 -1.3 -.8 -1.9 -1.5 -1.8 -2.1 -2.4 -1.6 -2.0 -4.8 -.3 -.8 -.1 .3 -1.1 -1.6 -1.4 -5.1
.7 -1.4 -1.8

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
NOVEMBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: November, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-12, NOAA-14 500 km.

Standard of comparison :Background field from Bracknell global model.

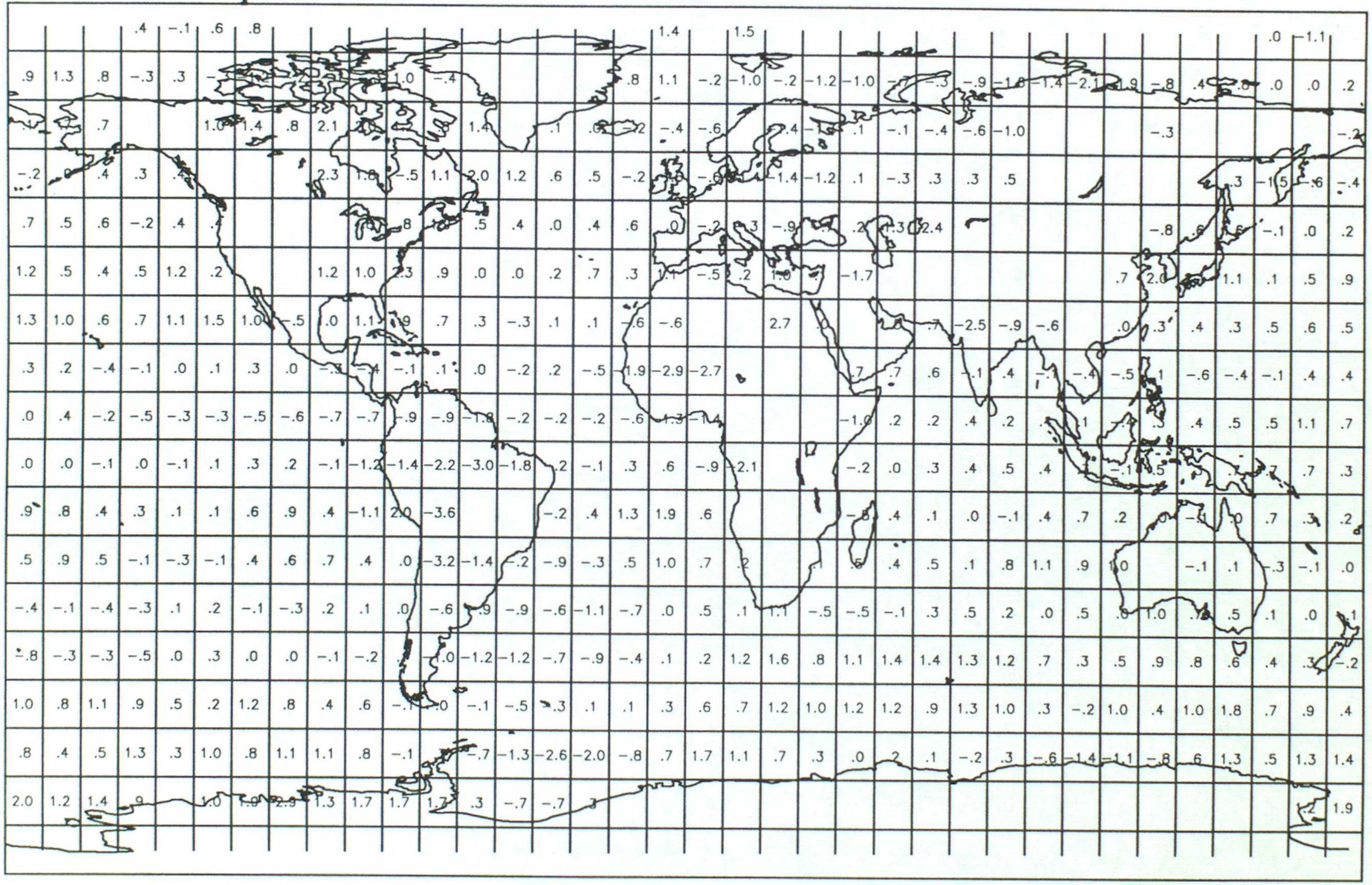
Selection Criteria :All SATEM soundings where number of observations > 30.

Data Extracted :Layer: 850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

:Mean observation minus background temperature differences

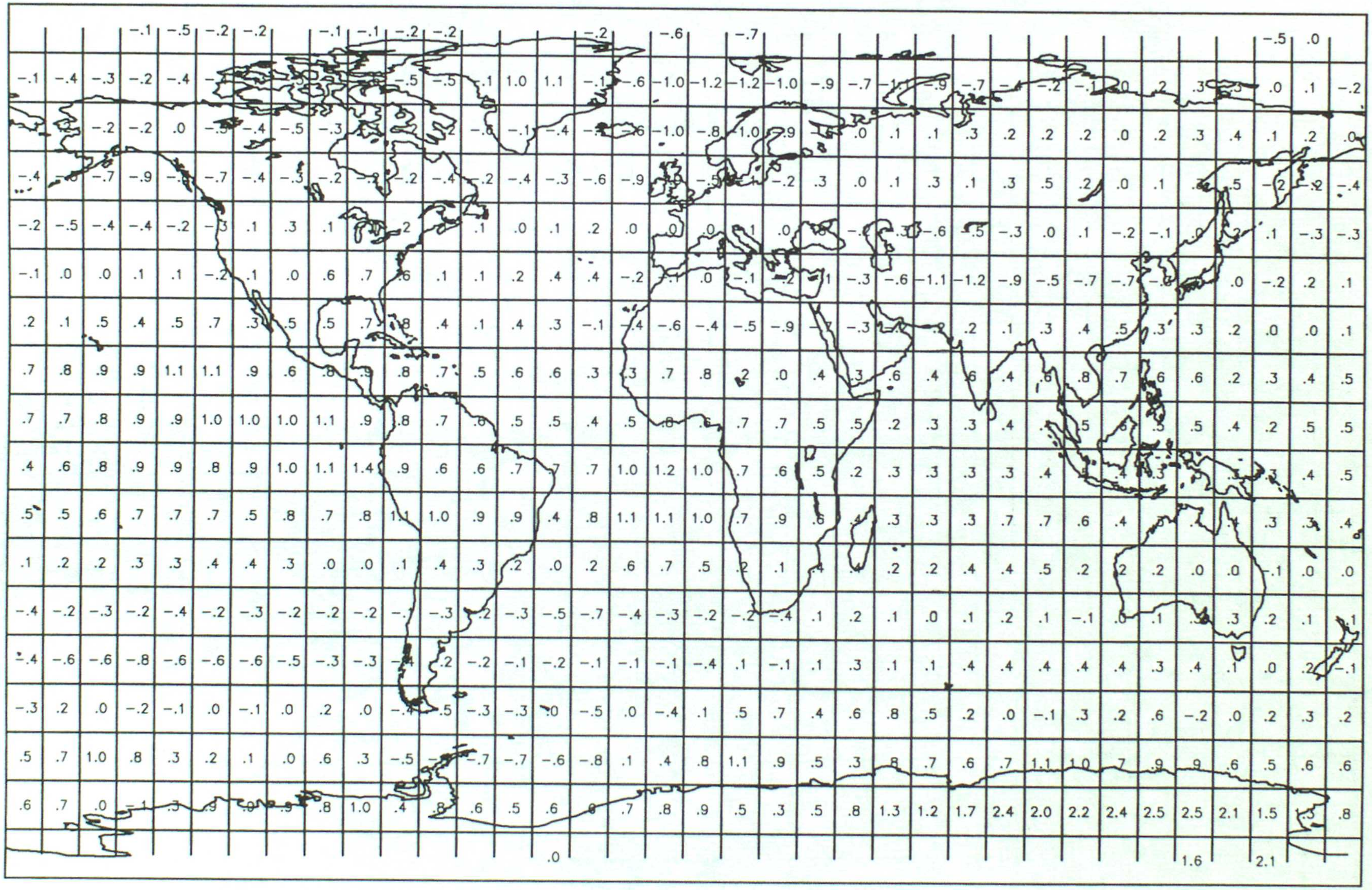
500 KM SATEMS : MEAN O−B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
NOVEMBER 1996
NOAA−12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 25

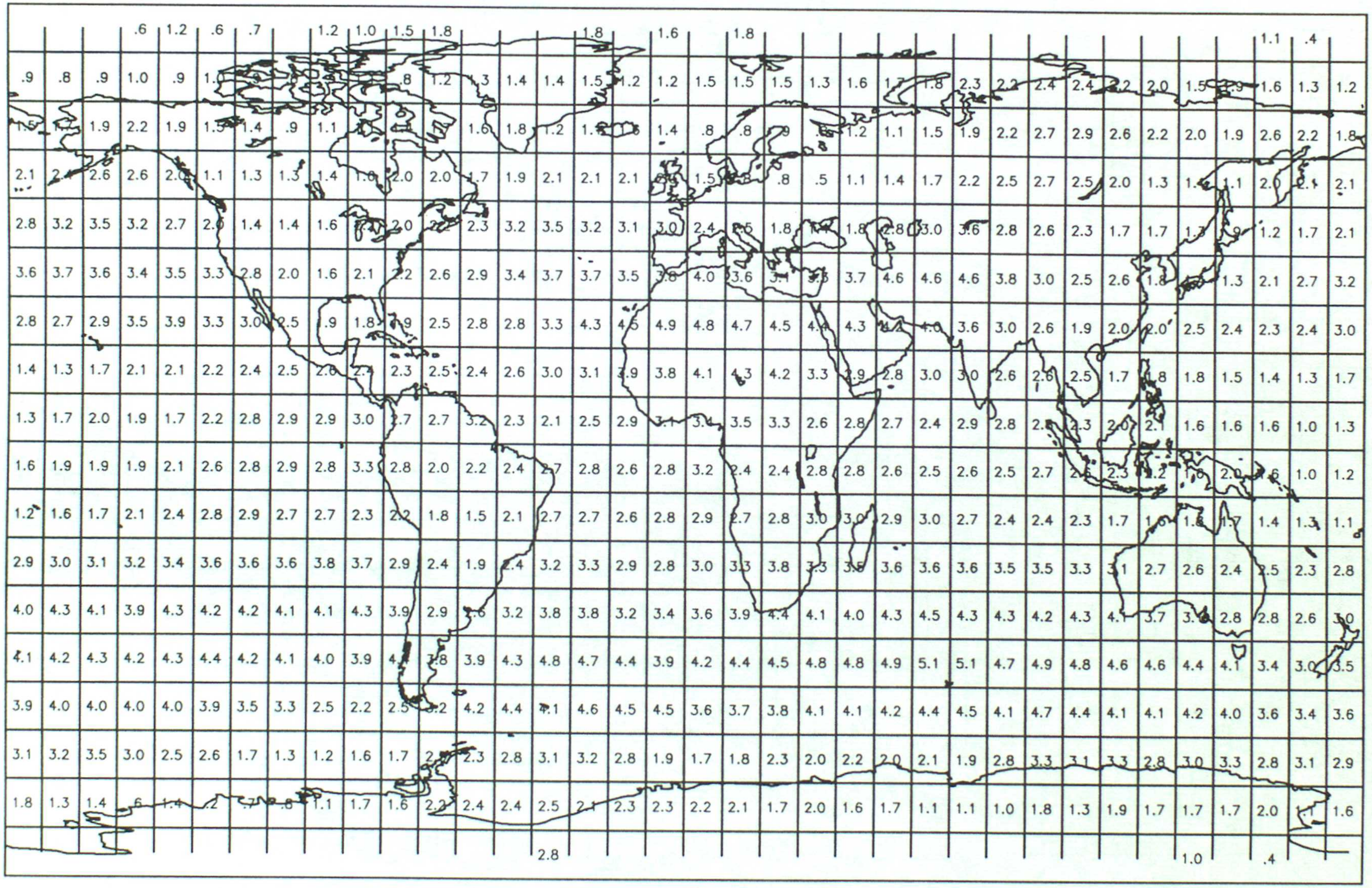

.4 −.1 .6 .8 1.4 1.5 .0 −1.1
.9 1.3 .8 −.3 .3 1.0 −.4 .8 1.1 −.2 −1.0 −.2 −1.2 −1.0 −.3 −.9 −1.6 −1.4 −2.1 1.9 −.8 .4 .8 .0 .0 .2
.7 1.0 1.4 .8 2.1 1.4 .1 .2 −.4 −.6 .4 .1 −.1 −.4 −.6 −1.0 −.3 −.2
−.2 .4 .3 2.3 1.6 −.5 1.1 2.0 1.2 .6 .5 −.2 −.6 −1.4 −1.2 .1 −.3 .3 .3 .5 .3 −1.5 .6 −.4
.7 .5 .6 −.2 .4 .8 .5 .4 .0 .4 .6 .0 −.2 .3 −.9 .2 1.3 2.4 −.8 .6 .6 −.1 .0 .2
1.2 .5 .4 .5 1.2 .2 1.2 1.0 2.3 .9 .0 .0 .2 .7 .3 1.1 −.5 .2 1.0 −1.7 .7 2.0 1.1 .1 .5 .9
1.3 1.0 .6 .7 1.1 1.5 1.0 −.5 .0 1.1 .9 .7 .3 −.3 .1 .1 −.6 −.6 2.7 .7 −2.5 −.9 −.6 .0 .3 .4 .3 .5 .6 .5
.3 .2 −.4 −.1 .0 .1 .3 .0 −.3 −.4 −.1 .1 .0 −.2 .2 −.5 −1.9 −2.9 −2.7 .7 .7 .6 −.1 .4 −.1 −.4 −.5 .1 −.6 −.4 −.1 .4 .4
.0 .4 −.2 −.5 −.3 −.3 −.5 −.6 −.7 −.7 −.9 −.9 −1.8 −.2 −.2 −.2 −.6 −1.3 −1.4 −1.0 .2 .2 .4 .2 .1 .3 .4 .5 .5 1.1 .7
.0 .0 −.1 .0 −.1 .1 .3 .2 −.1 −1.2 −1.4 −2.2 −3.0 −1.8 .2 −.1 .3 .6 −.9 −2.1 −.2 .0 .3 .4 .5 .4 −.1 .5 .7 .7 .3
.9 .8 .4 .3 .1 .1 .6 .9 .4 −1.1 2.0 −3.6 −.2 .4 1.3 1.9 .6 −.8 .4 .1 .0 −.1 .4 .7 .2 .0 −.1 .0 .7 .3 .2
.5 .9 .5 −.1 −.3 −.1 .4 .6 .7 .4 .0 −3.2 −1.4 −.2 −.9 −.3 .5 1.0 .7 .2 .1 .5 .4 .5 .1 .8 1.1 .9 1.0 −.1 .1 −.3 −.1 .0
−.4 −.1 −.4 −.3 .1 .2 −.1 −.3 .2 .1 .0 −.6 −.9 −.9 −.6 −1.1 −.7 .0 .5 .1 1.1 −.5 −.5 −.1 .3 .5 .2 .0 .5 .0 1.0 .7 .5 .1 .0 .1
−.8 −.3 −.3 −.5 .0 .3 .0 .0 −.1 −.2 .0 −1.2 −1.2 −.7 −.9 −.4 .1 .2 1.2 1.6 .8 1.1 1.4 1.4 1.3 1.2 .7 .3 .5 .9 .8 .6 .4 .3 −.2
1.0 .8 1.1 .9 .5 .2 1.2 .8 .4 .6 −.1 .0 −.1 −.5 .3 .1 .1 .3 .6 .7 1.2 1.0 1.2 1.2 .9 1.3 1.0 .3 −.2 1.0 .4 1.0 1.8 .7 .9 .4
.8 .4 .5 1.3 .3 1.0 .8 1.1 1.1 .8 −.1 −.7 −1.3 −2.6 −2.0 −.8 .7 1.7 1.1 .7 .3 .0 .2 .1 −.2 .3 −.6 −1.4 −1.1 −.8 .6 1.3 .5 1.3 1.4
2.0 1.2 1.4 .9 1.0 1.9 2.9 1.3 1.7 1.7 1.7 .3 −.7 −.7 .3 .2 1.9

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
NOVEMBER 1996
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 26

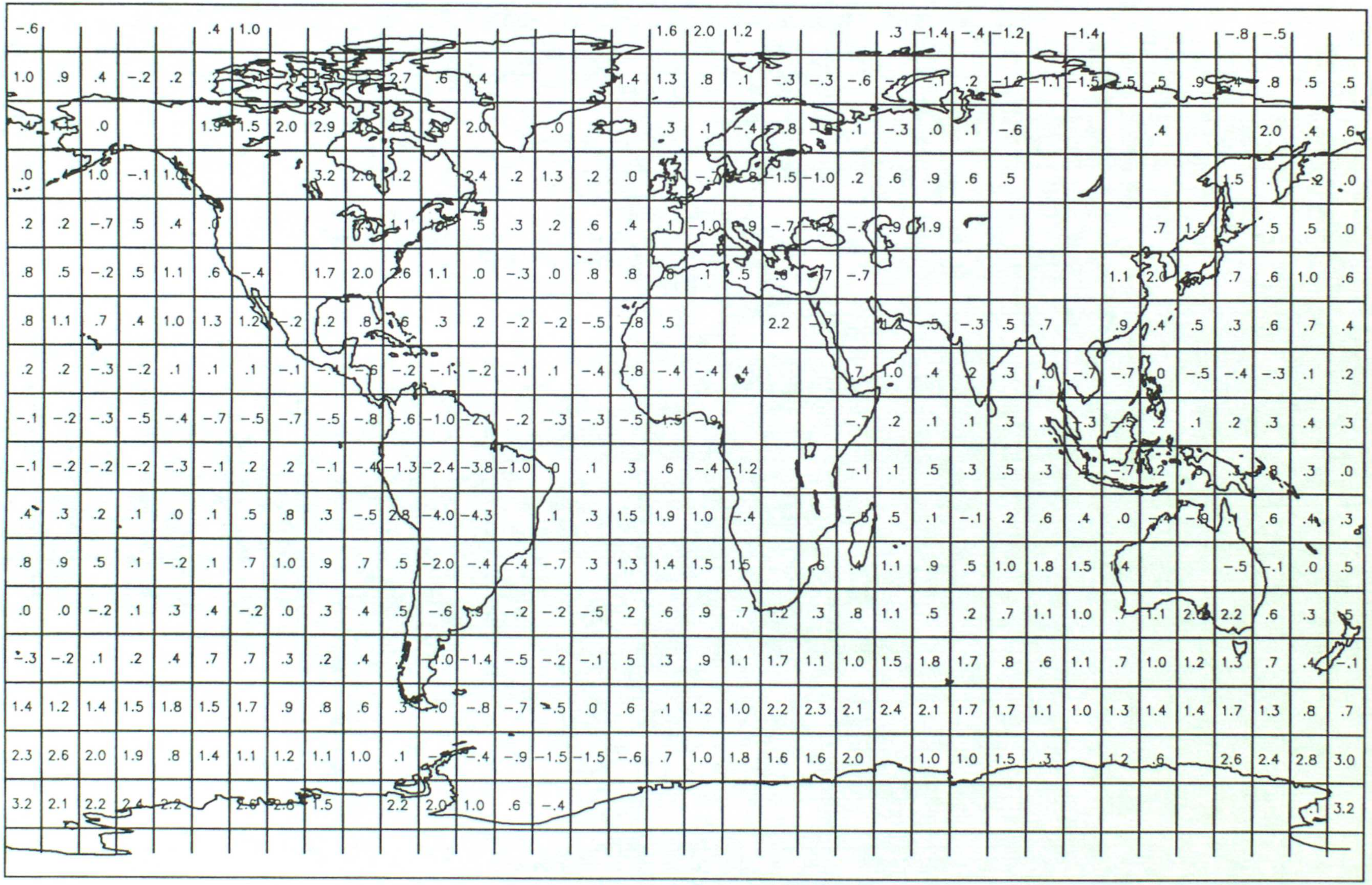

-.1 -.5 -.2 -.2 -.1 -.1 -.2 -.2 -.2 -.6 -.7 -.5 .0
-.1 -.4 -.3 -.2 -.4 -.5 -.5 .1 1.0 1.1 -.1 -.6 -1.0 -1.2 -1.2 -1.0 -.9 -.7 -.9 -.7 -.2 -.1 .0 .2 .3 .0 .1 -.2
-.2 -.2 .0 -.5 -.4 -.5 -.3 -.2 -.6 -.1 -.4 -.6 -1.0 -.8 -1.0 -.9 .0 .1 .1 .3 .2 .2 .2 .0 .2 .3 .4 .1 .2 .0
-.4 -.7 -.9 -.7 -.4 -.3 -.2 -.2 -.4 .2 -.4 -.3 -.6 -.9 -.2 .3 .0 .1 .3 .1 .3 .5 .2 .0 .1 .5 -.2 -.2 -.4
-.2 -.5 -.4 -.4 -.2 -.3 .1 .3 .1 .2 .1 .0 .1 .2 .0 .0 .0 .1 .0 -.3 -.6 .5 -.3 .0 .1 -.2 -.1 .2 .1 -.3 -.3
-.1 .0 .0 .1 .1 -.2 .1 .0 .6 .7 .6 .1 .1 .2 .4 .4 -.2 .1 .0 -.1 .2 .1 -.3 -.6 -1.1 -1.2 -.9 -.5 -.7 -.7 -.6 .0 -.2 .2 .1
.2 .1 .5 .4 .5 .7 .3 .5 .5 .7 .8 .4 .1 .4 .3 -.1 -.4 -.6 -.4 -.5 -.9 -.7 -.3 -.2 .2 .1 .3 .4 .5 .3 .3 .2 .0 .0 .1
.7 .8 .9 .9 1.1 1.1 .9 .6 .8 .9 .8 .7 .5 .6 .6 .3 .3 .7 .8 .2 .0 .4 .3 .6 .4 .6 .4 .6 .8 .7 .6 .6 .2 .3 .4 .5
.7 .7 .8 .9 .9 1.0 1.0 1.0 1.1 .9 .8 .7 .6 .5 .5 .4 .5 .6 .6 .7 .7 .5 .5 .2 .3 .3 .4 .5 .5 .6 .5 .5 .4 .2 .5 .5
.4 .6 .8 .9 .9 .8 .9 1.0 1.1 1.4 .9 .6 .6 .7 .7 .7 1.0 1.2 1.0 .7 .6 .5 .2 .3 .3 .3 .3 .4 .4 .4 .3 .3 .3 .4 .5
.5 .5 .6 .7 .7 .7 .5 .8 .7 .8 1.1 1.0 .9 .9 .4 .8 1.1 1.1 1.0 .7 .9 .6 .4 .3 .3 .3 .7 .7 .6 .4 .3 .4 .3 .3 .4
.1 .2 .2 .3 .3 .4 .4 .3 .0 .0 .1 .4 .3 .2 .0 .2 .6 .7 .5 .2 .1 .4 .4 .2 .2 .4 .4 .5 .2 .2 .2 .0 .0 .1 .0 .0
-.4 -.2 -.3 -.2 -.4 -.2 -.3 -.2 -.2 -.2 -.1 -.3 .2 -.3 -.5 -.7 -.4 -.3 -.2 -.2 -.4 .1 .2 .1 .0 .1 .2 .1 -.1 .0 .1 .3 .3 .2 .1 .1
-.4 -.6 -.6 -.8 -.6 -.6 -.6 -.5 -.3 -.3 -.4 .2 -.2 -.1 -.2 -.1 -.1 -.1 -.4 .1 -.1 .1 .3 .1 .1 .4 .4 .4 .4 .4 .3 .4 .1 .0 .2 -.1
-.3 .2 .0 -.2 -.1 .0 -.1 .0 .2 .0 -.4 .5 -.3 -.3 .0 -.5 .0 -.4 .1 .5 .7 .4 .6 .8 .5 .2 .0 -.1 .3 .2 .6 -.2 .0 .2 .3 .2
.5 .7 1.0 .8 .3 .2 .1 .0 .6 .3 -.5 .7 -.7 -.7 -.6 -.8 .1 .4 .8 1.1 .9 .5 .3 .8 .7 .6 .7 1.1 1.0 .7 .9 .9 .6 .5 .6 .6
.6 .7 .0 -.1 .3 .9 .9 .9 .9 .8 1.0 .4 .8 .6 .5 .6 .6 .7 .8 .9 .5 .3 .5 .8 1.3 1.2 1.7 2.4 2.0 2.2 2.4 2.5 2.5 2.1 1.5 .3 .8
.0 1.6 2.1

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
NOVEMBER 1996
FIGURE 27
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

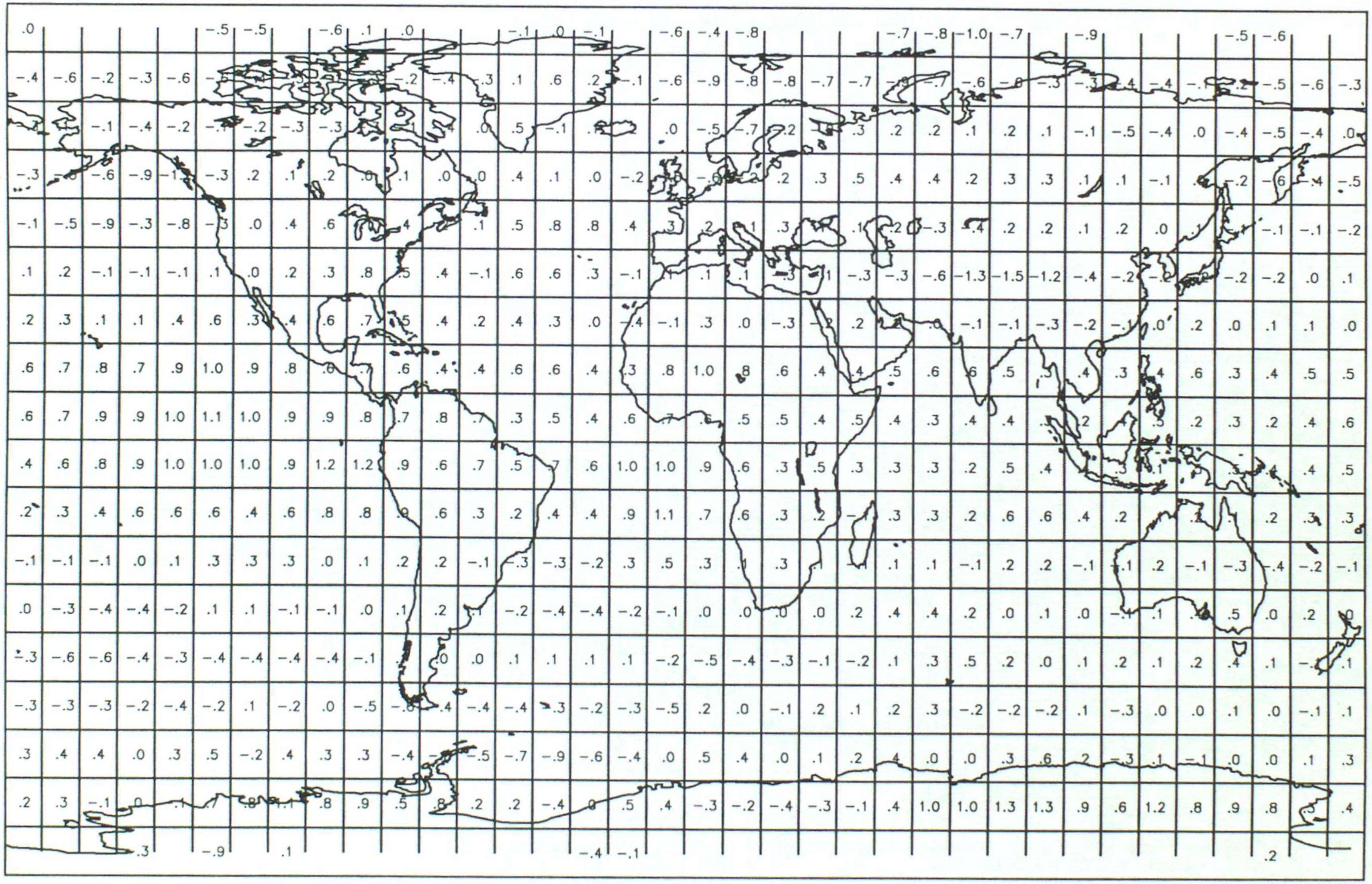

.6 1.2 .6 .7 1.2 1.0 1.5 1.8 1.8 1.6 1.8 1.1 .4
.9 .8 .9 1.0 .9 .8 1.2 1.3 1.4 1.4 1.5 1.2 1.2 1.5 1.5 1.5 1.3 1.6 1.7 1.8 2.3 2.2 2.4 2.4 2.2 2.0 1.5 1.9 1.6 1.3 1.2
1.5 1.7 1.9 2.2 1.9 1.5 1.4 .9 1.1 1.6 1.8 1.2 1.4 .8 .8 .9 .8 1.2 1.1 1.5 1.9 2.2 2.7 2.9 2.6 2.2 2.0 1.9 2.6 2.2 1.8
2.1 2.4 2.6 2.6 2.0 1.1 1.3 1.3 1.4 1.6 2.0 2.0 1.7 1.9 2.1 2.1 2.1 1.5 .8 .5 1.1 1.4 1.7 2.2 2.5 2.7 2.5 2.0 1.3 1.4 1.1 2.0 2.1 2.1
2.8 3.2 3.5 3.2 2.7 2.6 1.4 1.4 1.6 2.4 2.0 2.2 2.3 3.2 3.5 3.2 3.1 3.0 2.4 2.5 1.8 1.4 1.8 2.8 3.0 3.6 2.8 2.6 2.3 1.7 1.7 1.7 .9 1.2 1.7 2.1
3.6 3.7 3.6 3.4 3.5 3.3 2.8 2.0 1.6 2.1 2.2 2.6 2.9 3.4 3.7 3.7 3.5 3.8 4.0 3.6 3.1 3.3 3.7 4.6 4.6 4.6 3.8 3.0 2.5 2.6 1.8 1.3 2.1 2.7 3.2
2.8 2.7 2.9 3.5 3.9 3.3 3.0 2.5 .9 1.8 1.9 2.5 2.8 2.8 3.3 4.3 4.5 4.9 4.8 4.7 4.5 4.4 4.3 4.2 4.0 3.6 3.0 2.6 1.9 2.0 2.0 2.5 2.4 2.3 2.4 3.0
1.4 1.3 1.7 2.1 2.1 2.2 2.4 2.5 2.6 2.4 2.3 2.5 2.4 2.6 3.0 3.1 3.9 3.8 4.1 4.3 4.2 3.3 2.9 2.8 3.0 3.0 2.6 2.6 2.5 1.7 1.8 1.8 1.5 1.4 1.3 1.7
1.3 1.7 2.0 1.9 1.7 2.2 2.8 2.9 2.9 3.0 2.7 2.7 3.2 2.3 2.1 2.5 2.9 3.1 3.4 3.5 3.3 2.6 2.8 2.7 2.4 2.9 2.8 2.8 2.3 2.0 2.1 1.6 1.6 1.6 1.0 1.3
1.6 1.9 1.9 1.9 2.1 2.6 2.8 2.9 2.8 3.3 2.8 2.0 2.2 2.4 2.7 2.8 2.6 2.8 3.2 2.4 2.4 2.8 2.8 2.6 2.5 2.6 2.5 2.7 2.3 1.2 1.6 2.0 1.6 1.0 1.2
1.2 1.6 1.7 2.1 2.4 2.8 2.9 2.7 2.7 2.3 2.2 1.8 1.5 2.1 2.7 2.7 2.6 2.8 2.9 2.7 2.8 3.0 3.0 2.9 3.0 2.7 2.4 2.4 2.3 1.7 1.6 1.8 1.7 1.4 1.3 1.1
2.9 3.0 3.1 3.2 3.4 3.6 3.6 3.6 3.8 3.7 2.9 2.4 1.9 2.4 3.2 3.3 2.9 2.8 3.0 3.3 3.8 3.3 3.5 3.6 3.6 3.6 3.5 3.5 3.3 3.1 2.7 2.6 2.4 2.5 2.3 2.8
4.0 4.3 4.1 3.9 4.3 4.2 4.2 4.1 4.1 4.3 3.9 2.9 2.6 3.2 3.8 3.8 3.2 3.4 3.6 3.9 4.4 4.1 4.0 4.3 4.5 4.3 4.3 4.2 4.3 4.1 3.7 3.6 2.8 2.8 2.6 3.0
4.1 4.2 4.3 4.2 4.3 4.4 4.2 4.1 4.0 3.9 4.4 3.8 3.9 4.3 4.8 4.7 4.4 3.9 4.2 4.4 4.5 4.8 4.8 4.9 5.1 5.1 4.7 4.9 4.8 4.6 4.6 4.4 4.1 3.4 3.0 3.5
3.9 4.0 4.0 4.0 4.0 3.9 3.5 3.3 2.5 2.2 2.5 3.2 4.2 4.4 4.1 4.6 4.5 4.5 3.6 3.7 3.8 4.1 4.1 4.2 4.4 4.5 4.1 4.7 4.4 4.1 4.1 4.2 4.0 3.6 3.4 3.6
3.1 3.2 3.5 3.0 2.5 2.6 1.7 1.3 1.2 1.6 1.7 2.3 2.8 3.1 3.2 2.8 1.9 1.7 1.8 2.3 2.0 2.2 2.0 2.1 1.9 2.8 3.3 3.1 3.3 2.8 3.0 3.3 2.8 3.1 2.9
1.8 1.3 1.4 .6 1.4 .2 .7 .8 1.1 1.7 1.6 2.2 2.4 2.4 2.5 2.1 2.3 2.3 2.2 2.1 1.7 2.0 1.6 1.7 1.1 1.1 1.0 1.8 1.3 1.9 1.7 1.7 1.7 2.0 1.1 1.6
2.8 1.0 .4

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
NOVEMBER 1996
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28



500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
NOVEMBER 1996
FIGURE 29
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


.0 –.5 –.5 –.6 .1 .0 –.1 .0 –.1 –.6 –.4 –.8 –.7 –.8 –1.0 –.7 –.9 –.5 –.6
–.4 –.6 –.2 –.3 –.6 –.2 –.4 –.3 .1 .6 .2 –.1 –.6 –.9 –.8 –.8 –.7 –.7 –.7 –.6 –.3 –.3 .4 –.4 .2 –.5 –.6 –.3
–.1 –.4 –.2 –.2 –.3 –.3 .0 .5 –.1 .0 –.5 –.7 .2 .3 .2 .2 .1 .2 .1 –.1 –.5 –.4 .0 –.4 –.5 –.4 .0
–.3 –.6 –.9 –.3 .2 .1 .2 .0 .1 .0 .0 .4 .1 .0 –.2 .2 .3 .5 .4 .4 .2 .3 .3 .1 .1 –.1 –.2 –.6 –.4 –.5
–.1 –.5 –.9 –.3 –.8 –.3 .0 .4 .6 .4 .1 .5 .8 .8 .4 .3 .2 .1 .3 .1 .2 –.3 –.4 .2 .2 .1 .2 .0 –.1 –.1 –.2
.1 .2 –.1 –.1 –.1 .1 .0 .2 .3 .8 .5 .4 –.1 .6 .6 .3 –.1 .1 .1 –.3 .1 –.3 –.3 –.6 –1.3 –1.5 –1.2 –.4 –.2 –.2 –.2 .0 .1
.2 .3 .1 .1 .4 .6 .3 .4 .6 .7 .5 .4 .2 .4 .3 .0 –.4 –.1 .3 .0 –.3 .2 –.1 –.1 –.3 –.2 .0 .2 .0 .1 .1 .0
.6 .7 .8 .7 .9 1.0 .9 .8 .6 .4 .4 .6 .6 .4 .3 .8 1.0 .8 .6 .4 .4 .5 .6 .6 .5 .4 .3 .4 .6 .3 .4 .5 .5
.6 .7 .9 .9 1.0 1.1 1.0 .9 .9 .8 .7 .8 .3 .5 .4 .6 .5 .5 .4 .5 .4 .3 .4 .4 .2 .2 .3 .2 .4 .6
.4 .6 .8 .9 1.0 1.0 1.0 .9 1.2 1.2 .9 .6 .7 .5 .7 .6 1.0 1.0 .9 .6 .3 .5 .3 .3 .3 .2 .5 .4 .3 .4 .4 .5
.2 .3 .4 .6 .6 .6 .4 .6 .8 .8 .9 .6 .3 .2 .4 .4 .9 1.1 .7 .6 .3 .2 .3 .3 .2 .6 .6 .4 .2 .2 .3 .3
–.1 –.1 –.1 .0 .1 .3 .3 .3 .0 .1 .2 .2 –.1 –.3 –.3 –.2 .3 .5 .3 .1 .3 .1 .1 –.1 .2 .2 –.1 .1 .2 –.1 –.3 –.4 –.2 –.1
.0 –.3 –.4 –.4 –.2 .1 .1 –.1 –.1 .0 .1 .2 .1 –.2 –.4 –.4 –.2 –.1 .0 .0 .0 .0 .2 .4 .4 .2 .0 .1 .0 –.1 .1 .5 .0 .2 .0
–.3 –.6 –.6 –.4 –.3 –.4 –.4 –.4 –.4 –.1 .0 .0 .1 .1 .1 .1 –.2 –.5 –.4 –.3 –.1 –.2 .1 .3 .5 .2 .0 .1 .2 .1 .2 .4 .1 –.1 .1
–.3 –.3 –.3 –.2 –.4 –.2 .1 –.2 .0 –.5 –.6 .4 –.4 –.4 .3 –.2 –.3 –.5 .2 .0 –.1 .2 .1 .2 .3 –.2 –.2 –.2 .1 –.3 .0 .0 .1 .0 –.1 .1
.3 .4 .4 .0 .3 .5 –.2 .4 .3 .3 –.4 .5 –.7 –.9 –.6 –.4 .0 .5 .4 .0 .1 .2 .4 .0 .0 .3 .6 .2 –.3 .1 –.1 .0 .0 .1 .3
.2 .3 –.1 .0 .7 .8 .1 .8 .9 .5 .8 .2 .2 –.4 .0 .5 .4 –.3 –.2 –.4 –.3 –.1 .4 1.0 1.0 1.3 1.3 .9 .6 1.2 .8 .9 .8 .3 .4
.3 –.9 .1 –.4 –.1 .2

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
NOVEMBER 1996 FIGURE 30
NOAA-14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

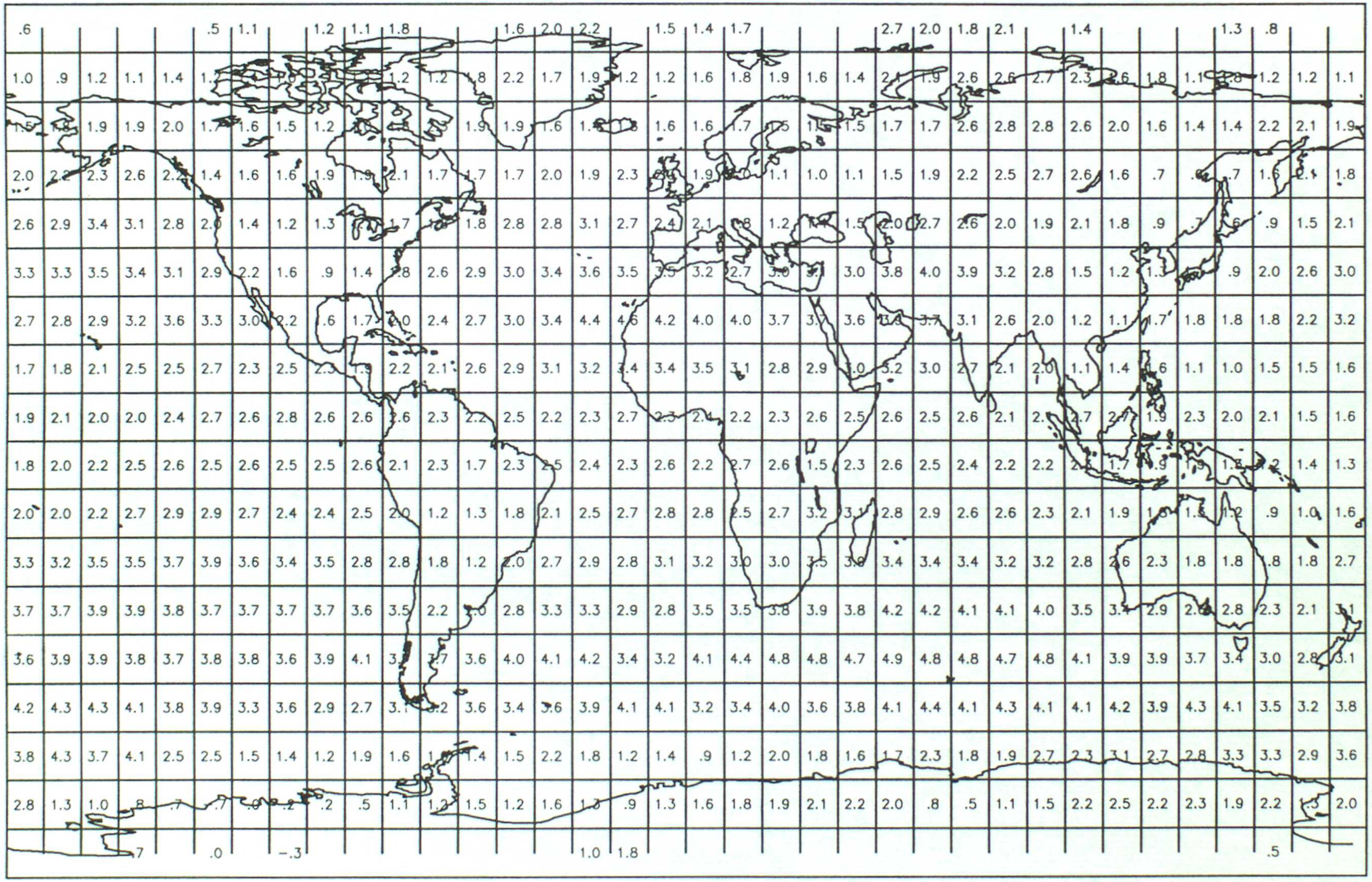

.6 .5 1.1 1.2 1.1 1.8 1.6 2.0 2.2 1.5 1.4 1.7 2.7 2.0 1.8 2.1 1.4 1.3 .8
1.0 .9 1.2 1.1 1.4 1.2 1.2 1.8 2.2 1.7 1.9 1.2 1.2 1.6 1.8 1.9 1.6 1.4 2.4 1.9 2.6 2.6 2.7 2.3 2.6 1.8 1.1 2.8 1.2 1.2 1.1
1.5 1.8 1.9 1.9 2.0 1.7 1.6 1.5 1.2 1.9 1.9 1.6 1.5 1.6 1.6 1.7 1.5 1.5 1.5 1.7 1.7 2.6 2.8 2.8 2.6 2.0 1.6 1.4 1.4 2.2 2.1 1.9
2.0 2.2 2.3 2.6 2.2 1.4 1.6 1.6 1.9 1.9 2.1 1.7 1.7 1.7 2.0 1.9 2.3 1.9 1.1 1.0 1.1 1.5 1.9 2.2 2.5 2.7 2.6 1.6 .7 .7 1.6 2.1 1.8
2.6 2.9 3.4 3.1 2.8 2.0 1.4 1.2 1.3 1.7 1.8 2.8 2.8 3.1 2.7 2.4 2.1 1.8 1.2 1.4 1.5 2.0 2.7 2.6 2.0 1.9 2.1 1.8 .9 .7 .6 .9 1.5 2.1
3.3 3.3 3.5 3.4 3.1 2.9 2.2 1.6 .9 1.4 1.8 2.6 2.9 3.0 3.4 3.6 3.5 3.5 3.2 2.7 3.0 3.1 3.0 3.8 4.0 3.9 3.2 2.8 1.5 1.2 1.3 .9 2.0 2.6 3.0
2.7 2.8 2.9 3.2 3.6 3.3 3.0 2.2 .6 1.7 2.0 2.4 2.7 3.0 3.4 4.4 4.6 4.2 4.0 4.0 3.7 3.7 3.6 3.8 3.7 3.1 2.6 2.0 1.2 1.1 1.7 1.8 1.8 1.8 2.2 3.2
1.7 1.8 2.1 2.5 2.5 2.7 2.3 2.5 2.3 1.9 2.2 2.1 2.6 2.9 3.1 3.2 3.4 3.4 3.5 3.1 2.8 2.9 1.0 3.2 3.0 2.7 2.1 2.0 1.1 1.4 .6 1.1 1.0 1.5 1.5 1.6
1.9 2.1 2.0 2.0 2.4 2.7 2.6 2.8 2.6 2.6 2.6 2.3 2.2 2.5 2.2 2.3 2.7 2.3 2.4 2.2 2.3 2.6 2.5 2.6 2.5 2.6 2.1 2.2 2.7 2.7 1.9 2.3 2.0 2.1 1.5 1.6
1.8 2.0 2.2 2.5 2.6 2.5 2.6 2.5 2.5 2.6 2.1 2.3 1.7 2.3 2.5 2.4 2.3 2.6 2.2 2.7 2.6 1.5 2.3 2.6 2.5 2.4 2.2 2.2 2.2 1.7 1.9 1.9 1.2 2.2 1.4 1.3
2.0 2.0 2.2 2.7 2.9 2.9 2.7 2.4 2.4 2.5 2.0 1.2 1.3 1.8 2.1 2.5 2.7 2.8 2.8 2.5 2.7 3.2 3.1 2.8 2.9 2.6 2.6 2.3 2.1 1.9 1.6 1.5 1.2 .9 1.0 1.6
3.3 3.2 3.5 3.5 3.7 3.9 3.6 3.4 3.5 2.8 2.8 1.8 1.2 2.0 2.7 2.9 2.8 3.1 3.2 3.0 3.0 3.5 3.8 3.4 3.4 3.4 3.2 3.2 2.8 2.6 2.3 1.8 1.8 .8 1.8 2.7
3.7 3.7 3.9 3.9 3.8 3.7 3.7 3.7 3.7 3.6 3.5 2.2 2.0 2.8 3.3 3.3 2.9 2.8 3.5 3.5 3.8 3.9 3.8 4.2 4.2 4.1 4.1 4.0 3.5 3.4 2.9 2.8 2.8 2.3 2.1 3.1
3.6 3.9 3.9 3.8 3.7 3.8 3.8 3.6 3.9 4.1 3.7 3.6 4.0 4.1 4.2 3.4 3.2 4.1 4.4 4.8 4.8 4.7 4.9 4.8 4.8 4.7 4.8 4.1 3.9 3.9 3.7 3.4 3.0 2.8 3.1
4.2 4.3 4.3 4.1 3.8 3.9 3.3 3.6 2.9 2.7 3.1 3.2 3.6 3.4 3.6 3.9 4.1 4.1 3.2 3.4 4.0 3.6 3.8 4.1 4.4 4.1 4.3 4.1 4.1 4.2 3.9 4.3 4.1 3.5 3.2 3.8
3.8 4.3 3.7 4.1 2.5 2.5 1.5 1.4 1.2 1.9 1.6 1.4 1.5 2.2 1.8 1.2 1.4 .9 1.2 2.0 1.8 1.6 1.7 2.3 1.8 1.9 2.7 2.3 3.1 2.7 2.8 3.3 3.3 2.9 3.6
2.8 1.3 1.0 .8 .7 .7 .9 .2 .2 .5 1.1 1.2 1.5 1.2 1.6 1.3 .9 1.3 1.6 1.8 1.9 2.1 2.2 2.0 .8 .5 1.1 1.5 2.2 2.5 2.2 2.3 1.9 2.2 1.3 2.0
.7 .0 -.3 1.0 1.8 .5

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed ($m\ s^{-1}$)
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 $m\ s^{-1}$ (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
13903	23.5	-34.3	ALL	MSLP	SUR	276	0	0	0.8	0.3	0.9
13905	21.9	-39.3	ALL	MSLP	SUR	267	0	0	0.8	0.1	0.8
13906	11.1	-39.9	ALL	MSLP	SUR	218	0	0	1.1	0.3	1.1
13910	19.6	-42.6	ALL	MSLP	SUR	260	0	0	0.9	0.3	0.9
13911	16.4	-52.4	ALL	MSLP	SUR	228	0	0	1.1	0.6	1.2
13912	21.9	-53.3	ALL	MSLP	SUR	250	0	0	1.0	0.8	1.2
13913	17.3	-37.0	ALL	MSLP	SUR	238	0	0	0.8	0.4	0.9
13915	15.8	-36.6	ALL	MSLP	SUR	258	0	0	0.9	0.0	0.9
25565	61.0	-4.2	ALL	MSLP	SUR	143	0	0	1.7	-0.6	1.8
38982	36.4	-35.5	ALL	MSLP	SUR	1	0	0	0.0	-3.9	3.9
40803	42.1	-16.0	ALL	MSLP	SUR	2	0	0	2.0	-2.3	3.1
40903	40.2	-18.8	ALL	MSLP	SUR	2	0	0	0.0	-1.5	1.5
41529	39.8	-44.6	ALL	MSLP	SUR	458	0	0	1.0	-0.1	1.0
41530	37.3	-45.7	ALL	MSLP	SUR	469	0	0	0.8	-0.1	0.8
41611	12.6	-45.8	ALL	MSLP	SUR	371	0	0	0.8	-0.2	0.8
41612	13.7	-50.7	ALL	MSLP	SUR	377	0	0	0.9	0.1	0.9
41613	16.8	-50.5	ALL	MSLP	SUR	370	0	0	0.8	0.1	0.8
41614	14.3	-49.5	ALL	MSLP	SUR	358	0	0	0.9	0.2	0.9
41922	23.7	-44.9	ALL	MSLP	SUR	262	0	0	0.8	0.9	1.2
41924	13.7	-48.4	ALL	MSLP	SUR	231	0	0	0.9	0.2	0.9
44513	49.8	-49.1	ALL	MSLP	SUR	312	0	0	1.4	-0.2	1.4
44614	61.4	-21.7	ALL	MSLP	SUR	1121	30	3	2.0	-0.2	2.0
44616	63.6	-60.5	ALL	MSLP	SUR	1732	2	0	1.2	0.8	1.4
44617	47.9	-28.0	ALL	MSLP	SUR	437	4	1	1.5	0.8	1.7
44726	53.2	-41.3	ALL	MSLP	SUR	543	3	1	1.9	-0.1	1.9
44743	49.4	-40.7	ALL	MSLP	SUR	359	2	1	1.5	0.1	1.5
44760	26.9	-64.8	ALL	MSLP	SUR	333	2	1	1.0	0.0	1.0
44763	60.1	-18.2	ALL	MSLP	SUR	1845	8	0	2.0	-0.1	2.0
44765	62.2	-15.4	ALL	MSLP	SUR	1629	8	0	1.7	-0.6	1.8
44766	52.0	-20.2	ALL	MSLP	SUR	412	0	0	2.0	-0.8	2.1
44767	60.1	-18.7	ALL	MSLP	SUR	1756	19	1	2.1	-0.1	2.1
44769	62.0	-6.9	ALL	MSLP	SUR	379	0	0	1.3	-0.4	1.3
44770	25.9	-57.1	ALL	MSLP	SUR	600	0	0	0.9	0.2	1.0
44771	57.9	-8.2	ALL	MSLP	SUR	1229	10	1	1.8	-0.1	1.8
44772	57.8	-17.4	ALL	MSLP	SUR	1677	1	0	2.1	0.0	2.1
44776	54.3	-44.7	ALL	MSLP	SUR	538	2	0	1.6	-0.1	1.6
44777	55.3	-32.0	ALL	MSLP	SUR	771	3	0	1.6	-0.1	1.6
44778	54.4	-27.4	ALL	MSLP	SUR	703	9	1	1.8	-0.3	1.8
44780	53.0	-38.5	ALL	MSLP	SUR	382	0	0	1.7	-0.4	1.8
44849	58.2	-55.9	ALL	MSLP	SUR	49	0	0	1.1	-0.6	1.2
44850	56.5	-47.6	ALL	MSLP	SUR	145	1	1	1.4	-0.2	1.4
44910	57.5	-52.6	ALL	MSLP	SUR	210	0	0	1.1	-0.3	1.1
44911	53.4	-42.9	ALL	MSLP	SUR	132	0	0	1.2	0.1	1.2
44917	57.5	-54.5	ALL	MSLP	SUR	166	0	0	1.4	0.1	1.4
44918	57.5	-51.3	ALL	MSLP	SUR	314	0	0	1.3	0.0	1.3
44919	56.3	-53.5	ALL	MSLP	SUR	286	11	4	1.3	0.2	1.3
44923	57.9	-54.2	ALL	MSLP	SUR	246	41	17	2.0	-0.2	2.0
44924	57.2	-53.4	ALL	MSLP	SUR	256	0	0	1.2	-0.1	1.2
47541	71.3	-69.6	ALL	MSLP	SUR	431	0	0	1.4	-0.7	1.6
56513	44.7	-63.6	ALL	MSLP	SUR	20	20	100	0.0	0.0	0.0
62503	38.5	-14.6	ALL	MSLP	SUR	530	0	0	1.0	-0.3	1.0
62504	37.2	-11.7	ALL	MSLP	SUR	515	0	0	0.9	-0.3	0.9
62507	39.0	-22.8	ALL	MSLP	SUR	236	0	0	1.5	0.3	1.6
62508	50.1	-17.9	ALL	MSLP	SUR	649	0	0	1.6	0.3	1.6
62510	40.1	-16.3	ALL	MSLP	SUR	566	0	0	1.0	0.1	1.0
62513	44.2	-18.8	ALL	MSLP	SUR	499	0	0	1.1	0.5	1.3
62515	48.0	-18.2	ALL	MSLP	SUR	605	0	0	1.3	0.0	1.3
62516	44.3	-14.8	ALL	MSLP	SUR	343	49	14	4.3	1.3	4.5
62517	49.7	-16.9	ALL	MSLP	SUR	586	0	0	1.6	0.1	1.6
62518	45.6	-21.0	ALL	MSLP	SUR	152	0	0	2.3	-0.6	2.4

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
62910	59.6	-49.1	ALL	MSLP	SUR	98	1	1	3.2	0.9	3.3
64513	56.5	-11.5	ALL	MSLP	SUR	337	0	0	1.8	0.4	1.8
64514	58.3	-8.4	ALL	MSLP	SUR	472	0	0	1.9	0.1	1.9
64561	62.1	-30.1	ALL	MSLP	SUR	79	0	0	2.5	-0.8	2.6
65562	51.8	-19.0	ALL	MSLP	SUR	151	1	1	2.1	-0.6	2.2
65594	57.2	-30.9	ALL	MSLP	SUR	1749	65	4	2.6	-0.5	2.6
65595	58.6	-26.9	ALL	MSLP	SUR	1633	4	0	2.1	-0.4	2.1
65598	60.2	-34.6	ALL	MSLP	SUR	1601	5	0	1.9	-0.6	2.0
65599	51.1	-48.5	ALL	MSLP	SUR	867	2	0	1.8	-0.1	1.8
97772	47.9	-45.4	ALL	MSLP	SUR	1	0	0	0.0	0.4	0.4
WIND SPEED											
38982	36.4	-35.5	ALL	SPEED	SUR	1	0	0	0.0	0.1	0.1
40803	42.1	-16.0	ALL	SPEED	SUR	2	0	0	2.4	-3.5	4.2
40903	40.2	-18.8	ALL	SPEED	SUR	2	0	0	3.5	0.7	3.6
41529	39.8	-44.6	ALL	SPEED	SUR	449	0	0	1.8	-0.4	1.8
41530	37.3	-45.7	ALL	SPEED	SUR	470	0	0	1.7	-0.8	1.9
41611	12.6	-45.8	ALL	SPEED	SUR	370	0	0	0.9	0.6	1.1
41612	13.7	-50.7	ALL	SPEED	SUR	376	0	0	1.1	-0.2	1.1
41613	16.8	-50.5	ALL	SPEED	SUR	368	0	0	1.1	-0.3	1.2
41614	14.3	-49.5	ALL	SPEED	SUR	358	0	0	1.0	-0.3	1.1
44513	49.8	-49.1	ALL	SPEED	SUR	279	0	0	2.7	-5.9	6.5
44726	53.2	-41.3	ALL	SPEED	SUR	537	1	0	2.9	-1.4	3.2
44743	49.4	-40.7	ALL	SPEED	SUR	1	1	100	0.0	0.0	0.0
44776	54.3	-44.7	ALL	SPEED	SUR	533	1	0	2.6	-0.9	2.8
62516	44.3	-14.8	ALL	SPEED	SUR	239	2	1	2.0	-0.7	2.1
62518	45.6	-21.0	ALL	SPEED	SUR	445	0	0	2.5	0.3	2.5
64516	73.9	-2.8	ALL	SPEED	SUR	595	0	0	2.5	-2.0	3.2
97772	47.9	-45.4	ALL	SPEED	SUR	1	0	0	0.0	0.6	0.6
WIND DIRECTION											
38982	36.4	-35.5	ALL	DIRN.	SUR	1	0	0	0.0	8.9	8.9
40803	42.1	-16.0	ALL	DIRN.	SUR	2	0	0	10.8	1.2	10.9
40903	40.2	-18.8	ALL	DIRN.	SUR	2	0	0	23.1	11.5	25.8
41529	39.8	-44.6	ALL	DIRN.	SUR	418	0	0	21.3	0.2	21.3
41530	37.3	-45.7	ALL	DIRN.	SUR	414	0	0	19.9	2.9	20.1
41611	12.6	-45.8	ALL	DIRN.	SUR	369	0	0	13.0	-2.6	13.2
41612	13.7	-50.7	ALL	DIRN.	SUR	365	0	0	12.6	0.4	12.6
41613	16.8	-50.5	ALL	DIRN.	SUR	332	0	0	11.4	11.1	15.9
41614	14.3	-49.5	ALL	DIRN.	SUR	350	0	0	10.0	7.0	12.2
44513	49.8	-49.1	ALL	DIRN.	SUR	250	0	0	32.6	22.8	39.8
44726	53.2	-41.3	ALL	DIRN.	SUR	494	1	0	23.3	-0.8	23.3
44743	49.4	-40.7	ALL	DIRN.	SUR	1	1	100	0.0	0.0	0.0
44776	54.3	-44.7	ALL	DIRN.	SUR	507	1	0	20.1	28.6	34.9
62516	44.3	-14.8	ALL	DIRN.	SUR	209	2	1	15.8	-11.6	19.6
62518	45.6	-21.0	ALL	DIRN.	SUR	429	0	0	21.5	-12.5	24.8
64516	73.9	-2.8	ALL	DIRN.	SUR	570	0	0	52.0	-16.3	54.5
97772	47.9	-45.4	ALL	DIRN.	SUR	1	0	0	0.0	-20.3	20.3

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.
GROSS ERROR LIMITS	:10.0 °C ; 60 m s^{-1} Vector Wind	
SELECTION CRITERIA	:N REP $\geq$ 20	

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	3337	0	1	1.7	-0.1	3356	0	2	0	8.4	0.9
AAN	96	1	9	1.8	-0.3	96	1	10	0	9.4	-0.8
ACA	951	1	2	1.8	-0.1	985	0	1	0	7.6	0.7
AEA	399	1	100	2.6	1.3	391	0	3	0	9.3	0.6
AEL	300	0	5	2.1	-0.3	302	1	7	0	8.0	0.2
AFB	20	0	0	2.6	-0.6	20	0	5	0	14.1	2.3
AFL	161	1	100	1.9	0.4	166	0	1	0	7.7	1.3
AFR	820	0	5	1.9	-0.2	834	0	7	0	8.9	0.2
AIH	90	3	6	1.7	0.1	92	0	5	0	10.2	1.5
AJM	23	4	4	1.9	-0.9	23	0	0	0	8.4	0.3
AMT	37	0	16	1.7	0.9	37	0	16	0	10.4	-0.1
AMX	140	1	4	1.9	-0.4	145	0	4	0	8.0	0.6
ANZ	240	1	2	2.2	-1.2	243	0	3	0	8.7	0.6
AOM	181	1	3	1.5	0.7	183	0	3	0	8.4	0.7
AUA	48	0	4	1.7	-1.0	49	0	4	0	7.9	0.6
AVA	78	4	5	1.6	-0.2	80	1	4	0	11.5	2.1
AZA	360	1	8	2.9	1.0	377	0	4	0	8.1	1.6
BAL	227	1	18	1.6	-0.4	233	0	20	0	9.7	1.2
BAW	1237	0	3	1.8	-0.3	1252	0	3	0	8.3	0.6
BWA	90	1	66	2.7	1.7	94	1	4	0	10.4	1.8
CDN	289	0	1	1.9	-0.3	294	0	1	0	7.2	0.6
CFC	36	3	19	2.0	-1.1	37	0	19	0	10.6	1.7
CFG	550	1	2	2.0	-1.0	550	0	3	0	8.6	0.0
CKS	24	8	100	2.5	-1.2	24	0	29	0	14.3	1.4
CKT	52	2	4	2.3	0.6	52	0	10	2	10.3	0.3
CLX	266	0	0	1.8	-0.6	269	0	2	0	8.3	0.6
CMM	45	0	9	1.4	0.2	45	0	11	0	8.9	1.0
COA	796	2	2	1.6	0.5	801	0	4	0	9.1	0.4
CRL	128	1	2	1.9	0.2	137	0	3	0	9.5	1.7
CSA	32	0	3	1.8	-1.0	32	0	3	0	5.3	0.6
CUB	226	0	100	2.0	1.1	235	0	10	0	9.0	-0.2
DAF	22	0	0	1.6	-0.1	21	0	0	0	6.3	0.9
DAL	2304	1	1	1.7	0.1	2321	0	2	0	8.6	0.6
DHL	434	11	100	4.4	-2.6	435	0	100	0	12.1	0.9
DLH	2608	0	8	1.9	0.3	2631	0	10	1	8.3	0.9
DOA	35	0	3	2.1	-1.1	37	0	0	0	7.8	0.9
ELY	174	1	15	2.9	0.7	180	1	11	0	9.2	-0.9
EWW	160	1	100	3.5	1.3	161	1	100	0	15.2	3.3
FDX	618	1	3	1.8	0.4	625	0	4	0	8.6	0.5
FIN	360	1	4	1.7	0.3	361	0	6	1	8.9	0.3
GAF	66	2	3	1.9	-0.1	65	0	6	0	8.7	-0.3
GDR	26	0	0	2.0	0.5	28	0	0	0	7.9	1.2
GTI	31	0	0	1.9	0.5	31	0	0	0	11.9	4.9
HLF	82	0	2	2.1	-0.7	82	0	0	0	8.8	0.4
HZM	33	0	0	1.5	0.2	34	0	6	0	10.3	-1.2
IBE	1182	1	26	2.0	0.1	1184	0	28	0	9.8	0.9
ICE	609	0	0	1.6	-0.1	611	0	1	0	6.8	0.3
KLM	1694	0	1	1.8	0.2	1714	0	2	0	8.4	0.6
LDA	133	0	12	2.3	-1.6	137	1	15	0	7.8	0.6
LDI	37	0	30	1.6	-0.7	38	0	32	0	6.7	-0.2
LIB	63	0	3	1.6	0.7	67	0	4	0	11.1	-0.3
LKR	46	0	2	1.7	0.8	46	0	9	0	10.5	-0.4
LOT	224	0	2	2.0	-1.0	224	0	2	0	7.6	0.9
LTU	603	0	4	1.7	0.1	600	0	6	0	8.9	0.6
MON	30	0	0	1.0	0.2	30	0	0	0	7.8	-0.1
MPH	557	0	1	1.6	-0.5	566	0	2	0	7.8	0.7
NWA	2140	0	1	1.9	0.7	2182	0	2	0	9.0	0.6
OAL	28	0	4	2.6	2.0	29	0	0	0	8.9	1.6
PAC	36	3	17	1.8	0.4	38	0	16	0	6.8	-0.6

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
PIA	29	3	7	2.7	-1.3	32	0	16	0	17.4	3.2
RCH	252	10	100	3.2	0.6	271	0	100	0	15.2	2.1
RJA	59	0	5	2.4	0.9	61	0	2	0	6.8	-1.3
RRR	149	1	17	2.5	0.1	150	0	17	1	8.0	0.8
SAB	57	0	2	1.9	0.2	58	0	7	0	9.6	0.0
SAS	923	0	2	2.3	0.6	927	0	2	0	8.2	0.6
SIA	46	0	11	2.0	-0.8	46	0	11	0	6.8	-0.4
SLR	29	0	14	2.1	-0.8	29	0	14	0	8.5	1.2
SVA	115	1	3	1.7	0.6	119	0	69	0	13.4	2.0
SWR	216	0	7	2.5	0.5	226	0	9	0	9.9	0.8
TAP	229	0	5	1.6	-0.4	228	0	6	0	9.7	0.6
TEJ	59	0	24	1.7	0.5	60	0	25	0	9.5	0.5
THY	21	0	10	1.5	0.3	26	0	23	0	17.9	9.2
TOW	49	0	0	1.4	-0.2	48	0	2	0	7.7	2.0
TWA	1142	0	2	1.9	-0.2	1134	0	4	0	9.0	1.0
TWE	40	0	0	2.9	1.0	40	0	0	0	7.8	1.7
UAL	1963	0	2	2.0	-1.1	1979	0	2	0	8.0	1.1
ULE	177	3	3	1.7	0.4	179	0	2	0	9.2	1.2
UPS	596	1	19	1.6	-0.2	603	0	18	0	9.8	0.7
USA	327	0	2	1.7	-0.4	325	0	4	0	9.4	0.7
VIA	128	1	11	1.9	0.7	131	0	11	0	10.3	0.5
VIR	307	1	3	1.9	-0.6	310	0	3	0	8.9	2.0
BA	4327	0	13	1.2	0.5	4327	0	15	0	7.5	1.2
IT	57	0	2	1.3	-0.2	57	0	2	0	7.5	2.1
KL	2829	0	11	1.2	0.3	2829	0	35	0	7.9	1.2
LH	197	0	12	1.6	0.6	192	1	14	0	7.7	1.9
N	317	2	6	2.8	0.5	332	0	9	0	12.6	1.6

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	1	0	0.0	1.0	1.0
DBBH	12	Z	100	2	0	11.5	20.9	17.5
DBLK	00	Z	100	1	0	0.0	4.0	4.0
FNOR	00	Z	100	11	0	10.8	19.2	15.9
FNOR	12	Z	100	11	0	13.8	13.8	-1.5
FNOU	00	Z	100	13	0	14.3	14.3	-0.1
FNOU	12	Z	100	10	0	11.5	12.6	-5.1
FNPH	00	Z	100	13	0	9.7	11.6	-6.4
FNPH	12	Z	100	11	0	15.9	20.8	-13.5
FNPS	00	Z	100	1	0	0.0	14.0	-14.0
FNRS	00	Z	100	12	0	15.9	16.3	3.8
FNRS	12	Z	100	10	0	15.8	16.3	-4.2
FNU	00	Z	100	1	0	0.0	1.0	1.0
JBOA	00	Z	100	1	0	0.0	13.0	13.0
JCCX	00	Z	100	1	0	0.0	16.0	16.0
JDWX	00	Z	100	1	0	0.0	39.0	39.0
JIVB	00	Z	100	1	0	0.0	17.0	17.0
LDWR	00	Z	100	30	0	13.5	18.1	12.1
LDWR	12	Z	100	29	0	14.5	16.9	8.8
OXVH2	00	Z	100	15	0	19.6	25.0	15.5
OXVH2	12	Z	100	16	0	29.6	33.9	16.5
OXYH2	00	Z	100	18	0	32.0	35.0	14.1
OXYH2	12	Z	100	21	0	17.3	23.7	16.2
SHIPAF	00	Z	100	7	0	24.1	28.2	14.7
SHIPAF	12	Z	100	8	0	27.5	44.1	34.5
SHIPS	00	Z	100	1	0	0.0	22.0	-22.0
SSSHIPS	00	Z	100	1	0	0.0	20.0	20.0
V2EZ	00	Z	100	9	0	35.3	46.1	29.7
V2EZ	12	Z	100	9	0	24.3	27.7	13.3
V2GH	00	Z	100	15	0	21.1	30.5	-21.9
V2GH	12	Z	100	16	0	24.3	28.4	-14.6
V2LV	00	Z	100	28	0	12.9	15.0	7.8
V2LV	12	Z	100	26	0	14.2	25.3	21.0
WTEU	00	Z	100	1	0	0.0	54.0	54.0
ZDLG	00	Z	100	1	0	0.0	15.0	15.0
ZDLG	12	Z	100	2	0	3.0	16.3	16.0
ZDLP	00	Z	100	1	0	0.0	225.0	225.0
03953	00	Z	100	26	0	17.0	22.1	14.0
03953	12	Z	100	27	0	15.3	17.9	9.2
04018	00	Z	100	30	0	38.0	60.0	46.4
04018	12	Z	100	30	0	18.3	45.0	41.1
04220	00	Z	100	29	0	13.2	26.1	22.5
04220	12	Z	100	29	0	11.4	26.0	23.3
04270	00	Z	100	28	0	17.9	20.6	10.3
04270	12	Z	100	24	0	19.3	29.1	21.8
04339	00	Z	100	30	0	14.3	23.0	18.1
04339	12	Z	100	28	0	14.2	24.3	19.8
04360	00	Z	100	29	0	22.5	30.0	19.9
04360	12	Z	100	27	0	12.3	25.7	22.6
08001	00	Z	100	27	0	23.3	24.9	8.7
08001	12	Z	100	27	0	18.3	18.4	-1.1
08508	00	Z	100	29	0	17.2	17.4	2.9
08508	12	Z	100	29	0	15.3	17.2	7.9
60020	00	Z	100	29	0	12.8	13.2	3.2
60020	12	Z	100	30	0	12.4	14.6	7.8
71600	00	Z	100	24	0	16.1	23.4	17.0
71600	12	Z	100	26	0	17.3	25.8	19.2
72201	00	Z	100	23	0	30.0	45.3	34.0
72201	12	Z	100	29	0	23.6	52.7	47.1
72402	00	Z	100	28	0	15.9	26.7	21.4
72402	12	Z	100	29	0	16.3	22.2	15.1
74494	00	Z	100	18	0	30.5	34.2	15.6
74494	12	Z	100	28	0	27.7	34.8	21.1
78016	00	Z	100	3	0	8.0	8.1	1.0
78016	12	Z	100	29	0	14.8	18.6	11.1

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	1	0	0.0	20.0	20.0
DBBH	12	Z	500	2	0	4.5	16.1	15.5
DBLK	00	Z	500	1	0	0.0	4.0	-4.0
FNOR	00	Z	500	12	0	8.9	16.5	13.8
FNOR	12	Z	500	12	0	7.4	13.2	10.9
FNOU	00	Z	500	14	0	13.1	13.3	2.4
FNOU	12	Z	500	14	0	10.3	12.0	6.2
FNPH	00	Z	500	13	0	7.5	8.9	4.8
FNPH	12	Z	500	11	0	14.8	16.1	6.3
FNPS	00	Z	500	1	0	0.0	1.0	-1.0
FNRS	00	Z	500	14	0	12.2	15.1	8.9
FNRS	12	Z	500	10	0	8.0	9.5	5.1
FNU	00	Z	500	1	0	0.0	3.0	3.0
JBOA	00	Z	500	1	0	0.0	5.0	5.0
JCCX	00	Z	500	1	0	0.0	13.0	13.0
JDWX	00	Z	500	1	0	0.0	14.0	14.0
JIVB	00	Z	500	1	0	0.0	5.0	-5.0
LDWR	00	Z	500	29	0	9.8	20.2	17.6
LDWR	12	Z	500	29	0	11.9	17.6	13.0
OXVH2	00	Z	500	16	0	17.4	20.2	10.1
OXVH2	12	Z	500	19	0	29.7	30.1	4.8
OXYH2	00	Z	500	21	0	25.6	25.9	4.2
OXYH2	12	Z	500	21	0	13.1	15.6	8.5
SHIPAF	00	Z	500	10	0	13.3	28.0	24.6
SHIPAF	12	Z	500	10	0	16.1	27.9	22.8
SHIPS	00	Z	500	1	0	0.0	11.0	11.0
SSSHIPS	00	Z	500	1	0	0.0	4.0	-4.0
V2EZ	00	Z	500	9	0	35.0	38.4	15.9
V2EZ	12	Z	500	9	0	17.5	22.4	14.0
V2GH	00	Z	500	21	0	16.5	16.5	-0.6
V2GH	12	Z	500	19	0	16.5	16.5	-0.4
V2LV	00	Z	500	29	0	15.3	17.5	8.6
V2LV	12	Z	500	28	0	10.3	14.6	10.4
WTEU	00	Z	500	1	0	0.0	29.0	29.0
ZDLG	00	Z	500	1	0	0.0	17.0	17.0
ZDLG	12	Z	500	2	0	0.5	13.5	13.5
ZDLP	00	Z	500	1	0	0.0	122.0	122.0
03953	00	Z	500	30	0	15.1	25.1	20.0
03953	12	Z	500	29	0	16.4	22.1	14.9
04018	00	Z	500	30	0	15.7	39.2	35.9
04018	12	Z	500	30	0	10.1	32.9	31.4
04220	00	Z	500	30	0	12.6	18.9	14.0
04220	12	Z	500	30	0	18.6	21.4	10.6
04270	00	Z	500	29	0	13.0	22.5	18.4
04270	12	Z	500	29	0	11.8	16.4	11.4
04339	00	Z	500	30	0	16.6	20.0	11.1
04339	12	Z	500	29	0	14.9	17.3	8.7
04360	00	Z	500	29	0	19.8	26.3	17.3
04360	12	Z	500	28	0	14.2	23.1	18.3
08001	00	Z	500	28	0	21.7	26.7	15.5
08001	12	Z	500	28	0	15.3	16.5	6.3
08508	00	Z	500	29	0	11.3	15.8	11.0
08508	12	Z	500	28	0	9.6	17.4	14.5
60020	00	Z	500	29	0	14.3	25.0	20.4
60020	12	Z	500	30	0	12.9	25.5	21.9
71600	00	Z	500	24	0	10.9	13.4	7.8
71600	12	Z	500	26	0	17.1	21.3	12.8
72201	00	Z	500	28	0	15.3	17.3	8.0
72201	12	Z	500	30	0	10.9	14.1	9.0
72402	00	Z	500	28	0	10.7	14.6	9.8
72402	12	Z	500	30	0	12.7	16.1	9.8
74494	00	Z	500	29	0	15.9	16.8	5.6
74494	12	Z	500	30	0	13.5	14.0	3.9
78016	00	Z	500	3	0	5.1	5.2	-1.0
78016	12	Z	500	29	0	8.7	9.2	3.0

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	1	0	0	0.0	1.8	0.4
DBBH	12	V	100	2	0	0	0.0	-1.8	-1.3
DBLK	00	V	100	1	0	0	0.0	-3.2	0.0
FNOR	00	V	100	11	0	0	5.1	-1.6	-1.7
FNOR	12	V	100	11	0	0	3.3	-1.8	0.1
FNOU	00	V	100	13	0	0	2.2	-2.4	-0.5
FNOU	12	V	100	10	0	0	3.7	-0.6	-0.7
FNPH	00	V	100	12	0	0	2.1	-1.9	-0.5
FNPH	12	V	100	11	0	0	2.5	-3.8	0.4
FNPS	00	V	100	1	0	0	4.6	-3.6	1.4
FNRS	00	V	100	10	0	0	4.6	-1.0	-0.7
FNRS	12	V	100	9	0	0	4.3	-1.4	-0.8
FNU	00	V	100	1	0	0	4.3	-4.6	3.8
JBOA	00	V	100	1	0	0	4.3	0.5	0.3
JCCX	00	V	100	1	0	0	4.3	-0.5	3.8
JDWX	00	V	100	1	0	0	4.3	1.8	1.4
JIVB	00	V	100	1	0	0	6.1	-4.4	-0.8
LDWR	00	V	100	30	0	0	6.1	-0.2	-1.0
LDWR	12	V	100	29	0	0	1.9	-0.5	-0.5
OXVH2	00	V	100	15	0	0	2.0	-0.8	-0.7
OXVH2	12	V	100	16	0	0	3.6	-3.2	0.5
OXYH2	00	V	100	17	0	0	4.7	-0.1	0.6
OXYH2	12	V	100	21	0	0	2.3	-0.8	0.5
SHIPAF	00	V	100	4	0	0	2.0	1.3	1.1
SHIPAF	12	V	100	4	0	0	2.0	1.6	-0.8
SSSHIPS	00	V	100	1	0	0	2.0	-14.4	4.3
V2EZ	00	V	100	9	0	0	2.0	-0.8	0.4
V2EZ	12	V	100	9	0	0	2.0	-0.5	-0.7
V2GH	00	V	100	16	0	0	2.0	1.7	-1.3
V2GH	12	V	100	16	0	0	4.7	1.2	0.2
V2LV	00	V	100	28	0	0	2.7	2.3	-1.8
V2LV	12	V	100	25	0	0	5.2	-0.2	-0.4
WTEU	00	V	100	1	0	0	3.5	1.6	1.1
ZDLG	00	V	100	1	0	0	3.5	-1.4	6.0
ZDLG	12	V	100	2	0	0	3.5	-1.1	1.5
03953	00	V	100	26	0	0	3.4	-0.4	0.2
03953	12	V	100	27	0	0	2.5	-1.9	-0.7
04018	00	V	100	30	0	0	3.4	-2.0	-0.1
04018	12	V	100	30	0	0	3.8	-1.8	-1.0
04220	00	V	100	29	0	0	2.3	0.6	1.0
04220	12	V	100	28	0	0	2.5	0.3	1.0
04270	00	V	100	28	0	0	2.6	1.2	0.7
04270	12	V	100	24	0	0	3.7	-0.8	0.5
04339	00	V	100	30	0	0	2.5	0.5	-0.5
04339	12	V	100	28	0	0	2.3	0.0	-0.5
04360	00	V	100	28	0	0	2.3	-0.1	-0.1
04360	12	V	100	27	0	0	2.5	-1.2	0.5
08001	00	V	100	25	0	4	4.2	-1.0	1.1
08001	12	V	100	25	0	0	4.5	-1.6	1.1
08508	00	V	100	28	0	0	3.2	0.4	-1.1
08508	12	V	100	27	0	0	3.0	-1.9	-0.3
60020	00	V	100	29	0	0	3.4	-0.2	-0.9
60020	12	V	100	30	0	0	2.3	-1.3	0.2
71600	00	V	100	21	0	0	4.1	0.2	0.3
71600	12	V	100	23	0	0	4.1	-0.5	0.8
72201	00	V	100	22	0	0	2.9	1.1	0.4
72201	12	V	100	29	0	0	3.9	0.6	-0.2
72402	00	V	100	27	0	0	2.8	-2.0	0.4
72402	12	V	100	27	0	0	3.7	-1.6	-0.7
74494	00	V	100	17	0	5	2.2	0.7	0.5
74494	12	V	100	25	0	0	8.0	-1.3	0.9
78016	00	V	100	3	0	0	4.8	-2.7	1.4
78016	12	V	100	29	0	0	4.8	-0.8	0.6

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: November, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	1	0	0	0.0	-2.1	1.8
DBBH	12	V	500	2	0	0	0.0	-1.8	-1.4
DBLK	00	V	500	1	0	0	0.0	-6.5	2.3
FNOR	00	V	500	12	0	0	4.8	-0.5	-0.8
FNOR	12	V	500	12	0	0	1.9	-2.7	-0.4
FNOU	00	V	500	14	0	0	2.9	-0.9	-0.2
FNOU	12	V	500	14	0	0	2.4	-2.7	-0.1
FNPH	00	V	500	12	0	0	3.6	0.0	-2.5
FNPH	12	V	500	11	0	0	2.7	-1.4	-2.8
FNRS	00	V	500	11	0	0	2.2	0.5	-0.6
FNRS	12	V	500	10	0	0	2.4	-1.8	0.3
FNU	00	V	500	1	0	0	4.4	-0.1	-2.1
JBOA	00	V	500	1	0	0	4.4	0.4	-1.0
JCCX	00	V	500	1	0	0	4.4	2.4	4.0
JDWX	00	V	500	1	0	0	4.4	-0.7	0.7
JIVB	00	V	500	1	0	0	3.5	1.0	-1.0
LDWR	00	V	500	29	0	0	3.5	1.2	0.3
LDWR	12	V	500	29	0	0	3.7	0.6	-0.9
OXVH2	00	V	500	15	0	20	3.2	1.9	-1.0
OXVH2	12	V	500	17	0	0	9.2	-0.4	0.0
OXYH2	00	V	500	20	0	0	5.5	-1.1	2.2
OXYH2	12	V	500	21	0	0	3.9	0.5	0.4
SHIPAF	00	V	500	9	0	0	3.9	-1.0	0.4
SHIPAF	12	V	500	10	0	0	3.9	-1.4	0.6
SHIPS	00	V	500	1	0	0	4.8	-1.8	-1.2
SSSHIPS	00	V	500	1	0	0	5.5	-0.3	0.8
V2EZ	00	V	500	9	0	0	5.5	-3.3	1.2
V2EZ	12	V	500	9	0	0	5.5	0.4	1.1
V2GH	00	V	500	20	0	0	5.5	0.0	0.1
V2GH	12	V	500	19	0	0	4.0	-0.8	1.6
V2LV	00	V	500	29	0	0	2.8	0.9	0.4
V2LV	12	V	500	27	0	0	3.1	-1.6	-0.2
WTEU	00	V	500	1	0	0	2.8	0.1	0.4
ZDLG	00	V	500	1	0	0	2.8	-6.5	2.8
ZDLG	12	V	500	2	0	0	2.8	-0.9	2.3
03953	00	V	500	30	0	0	4.2	-1.4	0.1
03953	12	V	500	29	0	0	4.8	-0.4	-0.6
04018	00	V	500	30	0	0	4.1	-0.7	0.3
04018	12	V	500	30	0	0	4.2	-0.1	-0.4
04220	00	V	500	28	0	0	4.3	0.4	1.3
04220	12	V	500	29	0	0	3.5	0.7	-0.1
04270	00	V	500	29	0	0	3.3	0.7	-0.2
04270	12	V	500	29	0	0	2.8	0.2	-0.6
04339	00	V	500	30	0	0	4.4	1.1	2.4
04339	12	V	500	28	0	7	4.7	3.4	0.0
04360	00	V	500	29	0	0	4.3	-0.1	0.7
04360	12	V	500	28	0	0	3.6	0.2	1.0
08001	00	V	500	28	0	0	4.7	-0.6	-0.1
08001	12	V	500	27	0	0	4.0	-0.8	0.4
08508	00	V	500	28	0	0	3.7	0.1	-0.5
08508	12	V	500	28	0	0	2.3	-0.8	-0.9
60020	00	V	500	29	0	0	2.3	-0.7	-1.3
60020	12	V	500	30	0	0	3.3	-1.5	-0.6
71600	00	V	500	22	0	0	4.3	2.0	-0.7
71600	12	V	500	25	0	0	5.7	1.6	1.8
72201	00	V	500	28	0	0	3.4	1.2	0.2
72201	12	V	500	30	0	0	3.1	0.6	-0.3
72402	00	V	500	28	0	0	2.3	0.6	1.6
72402	12	V	500	30	0	0	3.4	0.6	1.3
74494	00	V	500	28	0	0	4.4	-1.3	0.7
74494	12	V	500	30	0	0	3.6	0.1	0.9
78016	00	V	500	3	0	0	2.1	0.3	2.4
78016	12	V	500	29	0	0	2.1	2.3	0.2

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45